Callaway
1Q/2011 Plant Inspection Findings

Initiating Events

Significance: G Jun 23, 2010
Identified By: NRC
Item Type: FIN Finding
Failure to Ensure Completion of Corrective Actions for Degraded Chemical and Volume Control System Valves
The inspectors identified a finding associated with AmerenUE's failure to take prompt corrective actions for leaking boundary valves in the chemical and volume control system. On April 13, 2010, an attempt to place the train A chemical and volume control system mixed bed in service resulted in leakage past a documented leaking drain valve. The lingering equipment problems resulted in an unplanned 25 gallon per minute loss rate of volume control tank inventory and an emergency action level declaration for excessive reactor coolant system leakage. Later, the declaration was retracted. The licensee placed this issue into the corrective action program as Callaway Action Request 201003146.

This finding is more than minor because it was associated with the reactor safety Initiating Events Cornerstone attribute of configuration control and affected the objective to limit the likelihood of events that upset plant stability. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined that this finding is of very low significance because the condition did not result in the reactor coolant system technical specification leakage limit being exceeded, did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would be unavailable, and did not increase the likelihood of a fire or internal/external flood. This finding, which involved inadequate scheduling of corrective action related jobs, has a crosscutting aspect in the area of human performance associated with the work control component because AmerenUE did not appropriately coordinate work activities to address the impact of the work on different job activities [H.3(b)].
Inspection Report# : 2010003 *(pdf)*

Mitigating Systems

Significance: G Mar 24, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Document Reasonable Expectation of Operability for Equipment Supported b y the Class 1E Air Conditioning Units
The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for failure to adequately evaluate past operability associated with the Class 1E electrical equipment air conditioning unit. The inspectors identified that Revision 1 and 2 to Callaway Action Request 200800615 incorrectly concluded that the equipment supported by the Class 1E electrical equipment air conditioning unit train B was operable with the unit's cooling water flow control valve in manual. This issue was entered into the licensee's corrective action program as Callaway Action Request 201102565.

This finding was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of human performance and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened to a Phase 2 significance determination because it involved the loss of one train of safety related equipment for longer than the technical specification allowed outage time. A Region IV senior reactor analyst performed a bounding Phase 3

significance determination and determined that the finding was of very low safety significance (Green). The very short exposure period coupled with the availability of train A equipment helped to mitigate the significance. The dominant core damage sequences included a loss of main feedwater initiating event; the loss of train B electrical power; and various failures of auxiliary feedwater. This finding has a crosscutting aspect in the area of human performance associated with the decision making component because the licensee failed to use conservative assumptions including verifying the validity of the underlying assumptions when performing operability/reportability evaluations.
Inspection Report# : 2011002 *(pdf)*

Significance: SL-IV Mar 24, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Report Inoperability of Class IE Electrical Equipment for a Period Greater than Allowed by the Plant's Technical Specifications
The inspectors identified a IV noncited violation of 10 CFR 50.73(a)(2)(v), “Licensee Event Report System,” for failure to report inoperability of Class 1E electrical equipment for a period greater than allowed by the plant’s technical specifications. The licensee determined there were no prior instances where the Class 1E electrical equipment air conditioning units were inoperable greater than the technical specification allowed completion time of the supported equipment. The inspectors reviewed the licensee’s reportability evaluation and identified that the event described in Callaway Action Request 200800615 resulted in a period where the Class 1E electrical equipment air conditioning unit train B was inoperable for approximately 37 hours which exceeded the technical specification allowed completion time of the equipment supported by the Class 1E electrical equipment and constituted a condition which was prohibited by the plant's technical specifications and should have been reported in a licensee event report. This issue was entered into the licensee’s corrective action program as Callaway Action Request 201011132.

This finding affects the Mitigating Systems Cornerstone and is greater than minor because in order to perform its regulatory function, the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations. Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. Consistent with the guidance in Section 6.9, Paragraph d.9, of the NRC Enforcement Policy, this finding was determined to be a Severity Level IV noncited violation. This finding has no crosscutting aspect as it was strictly associated with a traditional enforcement violation.
Inspection Report# : 2011002 *(pdf)*

Significance: G Mar 24, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Containment Spray Test Procedure Potentially Creates an Unanalyzed Condition
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” for failure to provide adequate procedural guidance for testing of containment spray pumps. The inspectors reviewed a licensee evaluation of the acceptability of their existing containment spray pump testing procedure and found that it failed to adequately address the underlying technical issues because it relied on operators recognizing the diversion flow path and focused on the operability of the containment spray system and not the ability to maintain the long term cooling function of the emergency core cooling system. Additionally, the inspectors identified that the procedure would have provided a diversion flow path of post-accident sump fluids back to the refueling water storage tank exceeding those currently analyzed in the Callaway licensing bases. This issue was entered into the licensee’s corrective action program as Callaway Action Request 201011233 and the licensee implemented procedure changes to address the potential for post-loss of coolant accident containment sump fluids being injected back to the refueling water storage tank.
This finding was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of procedure quality and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The finding screened to a Phase 2 significance determination because it involved a potential loss of safety function. A Region IV senior reactor analyst performed a bounding Phase 3 significance determination and determined that the finding was of very low safety significance (Green). The very short exposure period coupled with the availability of equipment needed for other initiating events (other than small and medium loss of coolant accidents) helped to

mitigate the significance. The dominant core damage sequences included small and medium break loss of coolant accidents, and the failure of emergency core cooling pumps in the recirculation mode. This finding was determined not to have a crosscutting aspect since the performance deficiency is not reflective of current performance.
Inspection Report# : 2011002 *(pdf)*

Significance: G Mar 24, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Scaffolding Installation Inadequacy
The inspectors identified a noncited violation of Technical Specification 5.4.1.a for failure to properly implement Procedure MDP-ZZ-S0001, "Scaffolding Installation and Evaluation," Revision 26, when scaffolding was erected near or in contact with equipment in safety-related structures. On February 8 and March 16, 2011, the inspectors identified two locations where scaffold poles and a scaffold pin were less than the procedure required 1 inch from the auxiliary building vent line, the Train B emergency diesel lube oil drain line, and also essential service water system piping in the Train B diesel room. This issue was entered into the licensee's corrective action program as Callaway Action Request 201102091.

The deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. The finding was associated with the Mitigating Systems Cornerstone. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the issue is determined to have very low safety significance because the finding is not a design or qualification issue confirmed to result in a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of nontechnical specification equipment; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that the cause of the finding has a crosscutting aspect in the area of problem identification and resolution associated with the component of corrective action program because the licensee did not have a low threshold for identifying scaffold issues.
Inspection Report# : 2011002 *(pdf)*

Significance: SL-IV Mar 18, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Update the Updated Safety Analysis Report
The team identified a Severity Level IV, noncited violation of 10 CFR 50.71, "Maintenance of records, making of reports," paragraph (e) which states, in part, "Each person licensed to operate a nuclear power reactor shall update periodically the updated safety analysis report originally submitted as part of the application for the license, to assure that the information included in the report contains the latest information developed." Specifically, the licensee incorporated numerous errors in the updated safety analysis report associated with the descriptions of the onsite electrical power systems. The licensee has entered this violation into their corrective action program as Condition Reports 201101335 and 201102064.

The inspectors determined that the failure to update the updated safety analysis report as required by 10 CFR 50.71(e), "Maintenance of records, making of reports" was a performance deficiency. This finding was evaluated using traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. The inspectors used the NRC Enforcement Policy, dated September 30, 2010, to evaluate the significance of this violation. Consistent with the NRC Enforcement Policy, this finding was determined to be a Severity Level IV noncited violation. This finding has no crosscutting aspect as it was associated with a traditional enforcement violation.

Inspection Report# : 2011006 *(pdf)*

Significance: G Mar 18, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Adequately Design the Emergency Diesel Generator Ground Fault Protection Circuitry

The team identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, that “Measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions.” Specifically, when designing the bypass circuitry for the emergency diesel generator ground fault trip function, the licensee failed to ensure that the associated electrical components were adequately designed for the continuous duty they would have to withstand under bypassed trip conditions. This could result in an ignition source and subsequent fire in the area under these conditions. This finding was entered into the licensee’s corrective action program as Condition Report 201102064.

The team determined that the failure to analyze the suitability of the emergency diesel generator components when protection features were bypassed was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inadequate design of these components could have prevented continued operation of the emergency diesel generator under ground fault conditions with the trip signal bypassed. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the issue was determined to have very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Specifically, the licensee revised the associated procedures to include these components in the combustible material exclusion zone. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.
Inspection Report# : 2011006 *(pdf)*

Significance: G Mar 18, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Residual Heat Removal Flow Alarm Setpoint
The team identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, that “Measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions.” Specifically, as of March 3, 2011, the Mode 6 residual heat removal system low flow alarm setpoint did not adequately account for flow measurement uncertainties, and consequently was non-conservative. The licensee has entered the violation into their corrective action program as Condition Report 201101750.

The team determined that the failure to adequately analyze the uncertainty in measurement of residual heat removal system flow, and the impact of this failure, was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the design basis analysis, and plant instrumentation, did not ensure that, while operating in Mode 6, the control room operators would be alerted whenever the residual heat removal system flow through the reactor coolant system was below the required value of 1000 gallons per minute. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the issue was determined to have very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : 2011006 *(pdf)*

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Operability Determination Procedure
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” for failure to follow Procedure APA ZZ 00500, Appendix 1, “Operability and Functionality Determinations.” On the morning of September 23, 2010, Callaway engineering was informed that a concern existed

that the safety related portion of the component cooling water system safety function could be affected by a guillotine break at the nonsafety/nonseismic boundary for supply and return piping to the radwaste building. The inspectors determined that the licensee staff did not engage the shift manager early enough and the shift manager did not adequately challenge the basis describing the nonconforming condition as acceptable. The shift manager allowed the component cooling water system to be in an indeterminate state of operability for over two hours without putting compensatory measures in place as described in Procedure APA ZZ 00500, Appendix 1. This issue was entered into the licensee's corrective action program as Callaway Action Request 201010739.

This finding was determined to be greater than minor because it impacted the mitigating systems cornerstone attribute of human performance 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 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," this issue screened as requiring a Phase 3 analysis. The NRC senior risk analyst determined that because ?CDF was less than 1E-6 and ?LERF was not a significant contributor to risk, this finding was of very low safety significance, Green. This finding has a crosscutting aspect in the area of human performance associated with the decision making component because the licensee failed to use conservative assumptions when performing operability evaluations.

Inspection Report# : 2010005 *(pdf)*

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate, Untimely Corrective Actions for a Containment Spray System Condition Adverse to Quality
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," associated with the licensee's failure to promptly identify and correct a boric acid leak on the containment spray system, a condition adverse to quality. During a plant walkdown on October 14, 2010, the inspectors noted the continued existence of a boric acid leak on the flow element above the discharge of the train A containment spray pump. Further inspection revealed the leak was first identified on February 16, 2009. The inspectors found that nearly twenty months after initial identification, the repair plan for the leak had not been assigned a scheduled date. The failure to promptly correct the leak was directly caused by a lack of coordination between the engineering and outage planning departments. This issue was entered into the licensee's corrective action program as Callaway Action Request 201010263. Immediate corrective action included scheduling the repair for January 2011.

This finding is more than minor because, if left uncorrected, programmatic work control and corrective action deficiencies would have the potential to lead to a more significant safety concern. This finding affected the mitigating systems cornerstone. 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 the degraded condition did not result in a loss of operability or functionality. The inspectors determined that the finding has a crosscutting aspect in the area of human performance because the licensee work practices did not ensure supervisory and management oversight of work activities, such that nuclear safety was supported.
Inspection Report# : 2010005 *(pdf)*

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Enter Condition Adverse to Quality Associated with Emergency Diesel Generator Jacket Water Keep Warm Pump into the Corrective Action Program
The inspectors identified a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to follow the requirements of Callaway Procedure APA ZZ 00500, "Corrective Action Program," associated with a degraded train B emergency diesel generator jacket water keep warm pump. On November 6, 2010, the supply breaker to the train B emergency diesel generator jacket water keep warm pump tripped unexpectedly causing the engine to become inoperable. During follow-up investigation, the inspectors found that a March 31, 2009 motor circuit evaluation was performed that showed a step decrease in insulation resistance from 10,250 Mega-ohms to 3.5 Mega-ohms. The degradation was at a sufficient rate such that there was a reasonable doubt the motor would continue to be reliable until the next performance of the motor circuit

evaluation. The licensee failed to recognize this degradation and, as a result, did not initiate a Callaway action request to evaluate the condition. This issue was entered into the licensee's corrective action program as Callaway Action Request 201010654.

This finding is greater than minor because if left uncorrected, the failure to fully utilize the corrective action program could become a more significant safety concern. The inspectors determined that this finding impacted the mitigating systems cornerstone. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the issue screened as having very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, did not create a loss of system safety function of a single train for greater than the technical specification allowed outage times, and did not affect seismic, flooding, or severe weather initiating events. The cause of this finding is related to the problem identification and resolution crosscutting component of the corrective action program because licensee personnel failed to implement a corrective action program with a low threshold for identifying issues.

Inspection Report# : 2010005 *(pdf)*

Significance: G Nov 05, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Correct Degraded Conditions in Essential Service Water System in a Timely Manner
The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the licensee's failure to correct in a timely manner degraded conditions affecting the essential service water system. Specifically, the licensee failed to resolve the combined effects of corrosion and waterhammer events resulting in system leaks. The licensee has experienced the waterhammer events since initial plant startup and has been experiencing problems with corrosion since the mid 1990s. As corrective actions for this issue, the licensee plans to implement two system modifications next refueling outage to mitigate the impacts of waterhammer events. This noncited violation was entered into the corrective action program as Callaway Action Request 201010635.

The issue 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 Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the issue is determined to have very low safety significance because the finding is not a design or qualification issue confirmed not to result in a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of nontechnical specification equipment; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that the cause of the finding has a crosscutting aspect in the area of human performance associated with the component of resources because the licensee did not maintain the plant to minimize long-standing equipment issues.
Inspection Report# : 2010006 *(pdf)*

Significance: G Nov 05, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Correct Repetitive Failures in Steam Generator Atmospheric Dump Valves in a Timely Manner
The team identified a green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, involving the failure to promptly correct deficiencies affecting the steam generator atmospheric steam dump valves. In 2002, system engineers identified that the valves' current-to-pressure transducers were experiencing degradation because they were subjected to high vibration, and a proposed modification to move the transducers to a low vibration area occurred in 2006. The licensee experienced several additional failures in 2009 and determined that the reliable life of the transducers was 18 months in the high vibration areas. As of the date of the inspection, only one transducer of the four had been moved to a low vibration location, and the team determined that corrective actions for this condition adverse to quality have not been timely. The licensee plans to implement modifications to relocate the remaining three transducers to a lower vibration environment in 2011. The issue was entered into the licensee's corrective action program as Callaway Action Request 200910153.

This issue was determined to be greater than minor because it impacted the Mitigating Systems Cornerstone attribute of human performance 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 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the inspectors found that even though the steam generator atmospheric steam dump valves were not able to meet their technical specification surveillance requirements of achieving the full open position the valves would open sufficiently to meet its intended safety function. Therefore, the issue was of very low safety significance since it was a design or qualification deficiency confirmed not to result in a loss of functionality. This finding has a crosscutting aspect in the area of human performance associated with the resources component because the licensee failed to maintain long term plant safety by minimization of long-standing equipment issues associated with steam generator atmospheric steam dump valve current-to-pressure transducers.
Inspection Report# : 2010006 *(pdf)*

Significance: G Nov 05, 2010
Identified By: NRC
Item Type: FIN Finding
Failure to Follow the Corrective Action Program Procedure
The team identified a finding involving the licensee’s failure to follow the corrective action program procedure for assigning significance levels to Callaway action requests. This deficiency resulted in the licensee’s failure to adequately evaluate the cause and extent of condition for a number of issues, and in some examples resulted in recurrences of the issues. In one example the licensee identified a jacket water leak on Emergency Diesel Generator B in 2008. This significant condition adverse to quality was assigned a Significance Level 3 which only required a lower tier cause evaluation, when the procedure identified a significant condition adverse to quality as an example of a Significance Level 1. The team identified additional examples involving degraded safety-related equipment and security-related issues. As corrective action, the licensee entered the issue into its corrective action program as Callaway Action Request 201010472.

This issue was determined to be greater than minor because if left uncorrected, the issue could become a more significant safety concern. The inspectors determined that the issue involving Callaway Action Request 200812985, the failure of emergency diesel generator train B due to a leak in the jacket water system, was of very low safety significance because it was bounded by the significance of NCV 05000483/2009007-01, “Failure to Ensure Suitable Replacement Parts Essential for Emergency Diesel Generator Train B.”

The team evaluated the issue involving Callaway Action Request 200810379, the failure of engineered safety feature power supply SA036E, using Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” This issue screened as very low safety significance because it was not a design or qualification deficiency that resulted in a loss of operability or functionality, 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.

The team also evaluated several security-related examples of this finding that are described in Enclosure 2 of this letter. These security issues were also determined to be of very low security significance. Based on the sensitivity of security issues, Enclosure 2 is not publicly available because it contains security-related information.

This finding has a crosscutting aspect in the area of human performance associated with the component of training because training was needed for the screening committee to better understand a significant condition adverse to quality and to better understand the significance of security issues.

Inspection Report# : 2010006 *(pdf)*

Significance: SL-IV Sep 23, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Accurately Report a Condition that Could Have Prevented Fulfillment of a Safety Function
The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.73(a)(2)(v), "Licensee Event Report System," for failure to report simultaneous inoperability of two steam generator atmospheric steam dump valves as a condition that could have prevented fulfillment of a safety function. On February 8, 2010, AmerenUE submitted

Licensee Event Report 05000483/2009-005-00 to document that steam generator atmospheric steam dump valve ABPV0002 was out of service longer than allowed by Technical Specification 3.7.4, "Atmospheric Steam Dump Valves (ASDs)." The licensee event report also documented a period where valve ABPV0002 inoperability overlapped the inoperability of steam generator atmospheric steam dump valve ABPV0003. Callaway Final Safety Analysis Report Section 15.6.3.2.2.p. stated that all three intact steam generator atmospheric steam dump valves are credited in the cool down for a steam generator tube rupture. The inspectors determined that the licensee failed to adequately evaluate the reportability of having simultaneous inoperability of two steam generator atmospheric steam dump valves as a safety system functional failure. This issue was entered into the licensee's corrective action program as Callaway Action Request 201006086 and on September 29, 2010, the licensee submitted Licensee Event Report 05000483/2009-005-001 to correct the reporting error.

This finding affects the Mitigating Systems Cornerstone and is greater than minor because the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations in order to perform its regulatory function. Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated with the traditional enforcement process. Consistent with the guidance in Section IV.A.3 and Supplement I, Paragraph D.4, of the NRC Enforcement Policy, this finding was determined to be a Severity Level IV noncited violation. This finding has no crosscutting aspect as it was strictly associated with a traditional enforcement violation.
Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 03, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Lack of Maintenance as Cause of Diesel Generator Failure
The inspectors identified a Green noncited violation of 10 Part 50, Appendix B, Criterion V, for the failure to accomplish a root cause evaluation in accordance with station procedures. Specifically, the licensee failed to identify and document that implementing Fairbanks Morse Owners' Group recommended maintenance would have had a high likelihood of preventing the March 30, 2010, emergency diesel generator failure. As a result, the licensee did not classify the addition of maintenance on the governor and the governor drive as a corrective action, and the lack of maintenance was not evaluated for extent of condition and corrective actions, as applicable. This issue has been entered into the licensee's corrective action program as Callaway Action Request 201008405.

The finding was more than minor because it was associated with the mitigating system cornerstone attribute of equipment performance and adversely affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events. Specifically, the evaluation failed to discover the lack of maintenance on the diesel governor and drive and the licensee failed to classify the maintenance as necessary. In addition, there was a potential for other recommended maintenance not being performed on mitigating equipment due to not evaluating the extent of condition and cause. Using NRC Manual Chapter 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance because the finding did not result in the loss of safety function for mitigating equipment. This finding has a crosscutting aspect in the problem identification and resolution area associated with the operating experience component, in that the licensee failed to evaluate operating experience applicable to the root cause in a systematic and timely manner.
Inspection Report# : 2010007 *(pdf)*

Significance: G Jun 23, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Surveillance Procedure to Verify and Maintain Emergency Core Cooling System Operable
The inspectors identified a noncited violation of Technical Specification 3.5.2, "Emergency Core Cooling Systems." Specifically Technical Specifications Surveillance Requirement 3.5.2.3, "Verify the ECCS piping is full of water," was not being met by licensee Procedure OSP-SA-00003, "Emergency Core Cooling System Flow Path Verification and Venting." On April 22, 2010, the inspectors discovered that the train B residual heat removal system discharge line EJ-024-ECB-10' did not have an accessible high point vent. The line was required by Callaway procedures to be either monitored by venting or tested using an ultrasonic method as described in the procedure's acceptance criteria. Callaway had identified the need to install a vent valve in line EJ-024-ECB-10' per modification MP-08-0016 prior to Refueling Outage 17. The licensee originally scheduled the vent valve installation during Refueling Outage 17, but

had inappropriately deferred the maintenance to the next outage in fall 2011. As immediate corrective action, the licensee installed the vent valves in Refueling Outage 17 and placed this issue into the corrective action program as Callaway Action Request 201004078.

This finding is more than minor because it affected the Mitigating Systems Cornerstone procedure quality attribute 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 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the inspectors determined that this finding is of very low significance because it was only a design or qualification deficiency confirmed not to result in loss of operability. This finding has a crosscutting aspect in the area of human performance associated with the decision making component because the licensee failed to use conservative assumptions in decision making and did not adopt a requirement to demonstrate that either venting or ultrasonic testing was needed to verify line EJ-024-ECB-10” was full of water [H.1(b)].

Inspection Report# : 2010003 *(pdf)*

Significance: G Jun 23, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Correctly Fabricate Replacement Gasket for Emergency Diesel Generator TrainA
The inspectors identified a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” after the licensee failed to adequately select suitable replacement gaskets essential to the operation of emergency diesel generator train A. On March 30, 2010, during performance of Procedure OSP-NE-00024A, “Standby Diesel Generator A 24-Hour Run and Hot Restart Test,” the emergency diesel generator train A unexpectedly lost speed and tripped after 16.7 hours of operation. Posttrip indications revealed that the diesel generator tripped from a stripped splined shaft in the governor drive housing. The failure of the splined shaft was caused by an improperly cut gasket which did not have the required oil port hole to allow proper lubrication of the drive assembly. The licensee replaced the damaged shaft and placed this issue in their corrective action program as Callaway Action Request 201002675.

This finding was greater than minor because it was associated with the Mitigating Systems Cornerstone attribute of design control and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The resident inspectors performed the initial significance determination for the diesel gasket finding using the NRC Inspection Manual 0609, Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” The finding screened to a Phase 2 significance determination because it involved the loss of one train of safety related equipment for greater than its technical specification allowed outage time. A Region IV senior reactor analyst performed a Phase 2 significance determination using the pre-solved worksheet from the “Risk Informed Inspection Notebook for Callaway Nuclear Generating Station,” Revision 2.01a. The analyst assumed an exposure period of one year. The finding was potentially Yellow, which warranted further review. The senior reactor analyst subsequently performed a bounding Phase 3 significance determination and found the finding to be of very low safety significance (Green). The dominant cutsets included a loss of offsite power initiating event, failure to recover offsite power in 4 hours, failure of the train B emergency diesel generator, and a reactor coolant pump seal failure. Equipment that mitigated the significance included the operable emergency diesel generator and the turbine-driven auxiliary feedwater pump. This finding did not have a crosscutting aspect since it was not a performance deficiency reflective of current licensee performance.
Inspection Report# : 2010003 *(pdf)*

Barrier Integrity

Significance: G Sep 23, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement Adequate Administration Controls for Failed Containment Isolation Valve
The inspectors identified a green noncited violation of Technical Specification 3.6.3, "Containment Isolation Valves,"

after the licensee failed to implement adequate administrative controls following the failure of valve EGHV0059. On August 10, 2010, containment isolation valve EGHV0059 failed to indicate full closed in the control room. The licensee declared the valve inoperable and isolated the affected penetration flow path. To ensure reactor coolant pump cooling the licensee unisolated the penetration by opening valve EGHV0131 and placing it under administrative controls. The on-shift operations technician was assigned to isolate the penetration in the event containment isolation was required. The resident inspectors found the licensee's administrative controls were not consistent with the requirements in the technical specification bases which required a dedicated operator at the valve. The licensee then stationed a dedicated operator at valve EGHV0131 while repairs were conducted on valve EGHV0059. This issue was entered into the licensee's corrective action program as Callaway Action Request 201007644.

This finding is more than minor because it was associated with the Barrier Integrity Cornerstone attribute of procedural quality and affects the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the issue was determined to represent an actual open pathway in the physical integrity of reactor containment. Using Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process," the issue was determined to be a Type B finding of very low safety significance since the containment penetration was associated with a closed system and would generally not contribute to large early release frequency. This
finding has a crosscutting aspect in the area of human performance associated with the resources component because the licensee failed to ensure procedures used for addressing administrative controls were accurate and consistent with the technical specification bases [H.2(c)].
Inspection Report# : 2010004 *(pdf)*

Significance: G Jun 23, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Maintain Two Operable Source Range Channels During Core Alterations
The inspectors identified a self-revealing noncited violation of Technical Specification 5.4.1.a, "Procedures," when the licensee's inadequate procedure and failure to control work activities during a reload of the reactor vessel fuel assemblies resulted in deenergization of all available source range nuclear instrument channels. On May 6, 2010, while in Mode 6 – Refueling, licensee testing of nuclear instrument power range channel N44 and maintenance on 120 Vac instrument bus NN03 affecting power range channel N43 made up the logic for permissive P-10. The permissive sent a protective logic signal to deenergize both available source range nuclear instruments. The control room immediately directed the fuel handling crew to stop fuel movement until the source range channels could be restored. A fuel assembly was in the upender ready for transfer to the reactor vessel core location at the time. The licensee placed this issue into the corrective action program as Callaway Action Request 201004301.

This finding is more than minor because it was associated with the configuration control attribute of the Barrier Integrity Cornerstone and affects the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or releases. Using Manual Chapter 0609 Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 - Operational Checklists for Both PWRs and BWRs," this finding was of very low safety significance because it did not increase the likelihood of a loss of reactor coolant system inventory, did not degrade the licensee's ability to terminate a leak path or add reactor coolant system inventory when needed, and did not degrade the licensee's ability to recover decay heat removal once lost. This finding had a crosscutting aspect in the area of human performance associated with the work control component because the licensee failed to coordinate work activities by incorporating actions to address the impact of the work on different job activities and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance.
Inspection Report# : 2010003 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Significance: N/A Nov 05, 2010
Identified By: NRC
Item Type: FIN Finding
Problem Identification and Resolution
The team concluded that the corrective action program at the Callaway Plant was performing in a satisfactory manner to ensure safe plant operations. However, the team identified a number of instances in which the licensee did not follow its procedural guidance for assigning significance levels to problems identified and, as a result, did not adequately evaluate the causes and/or extent of conditions resulting in several repetitive issues.

The inspectors determined that the licensee evaluated industry operating experience for relevance to the facility and entered applicable items in the corrective action program. The inspectors noted that operating experience was considered in cause evaluations.

The team determined that the licensee had a healthy safety-conscious work environment in that workers felt free to raise safety concerns without fear of retaliation using all avenues available.

Inspection Report# : 2010006 *(pdf)*

Last modified : June 07, 2011