# Callaway
# 3Q/2005 Plant Inspection Findings

## Initiating Events

**Significance:** G Jun 23, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Unplanned auxiliary feedwater actuation due to use of an inadequate general operating procedure for troubleshooting.**
A self-revealing noncited violation of Technical Specification 5.4.1.a was identified after an unplanned auxiliary feedwater actuation and reactor trip signal occurred while shutdown due to an inadequate general operating procedure and poor crew decision making.

This finding is greater than minor because the procedural adequacy attribute of the initiating events cornerstone objective is affected. The inspectors concluded the auxiliary feedwater actuation and reactor trip signal was a transient initiator, affecting the initiating events cornerstone. The inspectors determined this finding to be of very low safety significance because the condition did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment functions.
Inspection Report# : 2005003*(pdf)*

**Significance:** G Mar 24, 2005
Identified By: Self-Revealing
Item Type: FIN Finding
**Unplanned reactor trip due to ineffective use of industry OE during a maintenance activity.**
A self-revealing finding was identified after an unplanned reactor trip resulted from the licensee's ineffective use of industry operating experience. The plant tripped from low steam generator level after a feedwater regulating valve closed. The regulating valve closed after a control power supply shorted during a maintenance activity. The power supply shorted because the maintenance workers had used an inadequate work instruction. A similar event occurred at the Beaver Valley Nuclear Plant during June 2003. The licensee failed to effectively use the operating experience when planning and performing the maintenance activity. The licensee's failure to properly revise an incorrect work package before proceeding with the work activity, a poor prejob brief, and organizational time pressures also contributed to the event. Additionally, the licensee's evaluation of the event identified contributing causes as root causes, and did not take into account the programmatic issues to include operating experience reviews into work instruction development procedures. This finding had crosscutting aspects regarding human performance, and problem identification and resolution in that the evaluation of root versus contributing causes was deficient.

This finding was more than minor because the procedural adequacy attribute of the initiating events cornerstone objective was affected. The inspectors concluded the reactor trip is a transient initiator, affecting the initiating events cornerstone. The inspectors determined this finding to be of very low safety significance because the condition did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment functions.
Inspection Report# : 2005002*(pdf)*

**Significance:** G Dec 31, 2004
Identified By: Self-Revealing
Item Type: FIN Finding
**Operator Error Resulted in a Steam Generator Chemistry Excursion.**
A self-revealing finding was identified after an operator error resulted in an unplanned secondary side chemistry excursion and a steam generator blowdown isolation. An operator failed to maintain minimum cooling tower blowdown flow during an effluent release of steam generator blowdown demineralizer flush water to the environment. The reduction in flow resulted in the isolation of the release and pressurization of the steam generator blowdown flush line. The pressurized line resulted in the transfer of flush water to the main condenser and caused steam generator chemistry to exceed the Action Level 2 threshold. This finding, which involved the failure of an operator to follow procedure, was associated with the crosscutting area of human performance (personnel).

This finding is greater than minor because the chemistry excursion had an impact on the equipment performance attribute of the initiating events objective cornerstone. The inspectors determined that this finding is of very low safety significance because the chemistry excursion did not add to the likelihood of a primary or secondary system loss of coolant accident initiator, did not contribute to loss of mitigation equipment functions, and did not increase the likelihood of a fire or internal/external flood.
Inspection Report# : 2004005*(pdf)*

**Significance: N/A** Nov 08, 2004
Identified By: NRC
Item Type: FIN Finding

**Supplemental Inspection for a White performance indicator in the initiating events cornerstone.**
The NRC conducted a supplemental inspection to assess the licensee's evaluation of conditions associated with a White performance indicator in the initiating events cornerstone. Three unplanned reactor trips resulted in the unplanned scrams per 7,000 critical hours performance indicator to cross the threshold from Green to White during the second quarter of 2004. The inspector concluded that the licensee's problem identification, root cause, extent-of-condition evaluations, and corrective actions for the three reactor trips were adequate. Two of the reactor trips were caused by main generator supervisory relay failures. The third reactor trip was caused by a reactor operator's failure to follow the power ascension procedure. Several of the root causes contributing to the third reactor trip have been long-standing station problems. The inspector identified weaknesses in the licensee's root cause determination and corrective actions related to the third reactor trip. The inspector did not identify any common attributes linking the three reactor trips from a risk perspective.
Inspection Report# : 2004009*(pdf)*

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# Mitigating Systems

**Significance:** G Sep 23, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Degraded auxiliary feedwater pump due to the failure to follow procedure.**
A self-revealing noncited violation of Technical Specification 5.4.1.a, "Procedures," was identified after AmerenUE failed to properly align the turbine driven auxiliary feedwater pump mechanical overspeed trip mechanism after surveillance testing. The trip mechanism was misaligned from August 1 - 18, 2005. The misaligned trip mechanism increased the probability the turbine would trip if the pump would have been required to respond to an event. This issue was entered into the corrective action program as Callaway Action Request 200505801. This finding, which involved the failure of an operator to follow procedure, was associated with the crosscutting area of human performance.

This finding is greater than minor because the degraded trip mechanism affected the reactor mitigating systems cornerstone and the equipment performance attribute to ensure availability of systems that respond to prevent core damage. This finding is only of very low safety significance because the condition was not a design or qualification deficiency confirmed to result in loss of function per Generic Letter 91-18; did not result in an actual loss of safety function of a system; did not increase the likelihood of a fire; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.
Inspection Report# : 2005004*(pdf)*

**Significance:** G Jun 23, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to maintain the integrity of a three-hour auxiliary building fire door.**
A self-revealing noncited violation of Technical Specification 5.4.1.d, "Fire Protection Program," was identified after the licensee failed to maintain the integrity of an auxiliary building fire door that was required to provide a three-hour fire barrier.

This finding is greater than minor because the reactor safety mitigating systems cornerstone attribute to provide protection against external factors was affected. The inspectors used Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to analyze this finding because the degraded door is a fire barrier related to the licensee's fire protection defense-in-depth strategies. The licensee had several prior opportunities to self-identify the degraded door and previous corrective actions were not effective to prevent recurrence. The inspectors concluded that the condition was intermittent and thus had a low degradation rating. The inspectors concluded this finding is of very low safety significance because of the low degradation level.
Inspection Report# : 2005003*(pdf)*

**Significance:** G Mar 24, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
**Ineffective cause determination and corrective actions to prevent recurrence of ECCS pipe voiding.**
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, after the licensee's cause determination and corrective actions were ineffective to prevent recurrence of safety injection pump discharge pipe voiding. Plant Technical Specifications required the licensee to verify that the emergency core cooling system piping was full of water every 31 days. The licensee established a 20 percent maximum void fraction as the acceptance limit for the safety injection pump hot leg injection discharge piping. On seven occasions during the past 2 years the surveillance acceptance criteria was not met. This finding had crosscutting aspects regarding problem identification and resolution in that the licensee's actions to determine the cause of the repeated surveillance failures and to implement corrective actions were not effective in preventing recurrence of the condition.

This finding is greater than minor because voiding in emergency core cooling system piping affected the reactor mitigating systems cornerstone and the equipment performance attribute to ensure availability of systems that respond to prevent core damage. This finding was only of very low safety significance because the condition was not a design or qualification deficiency confirmed to result in loss of function per Generic

Letter 91-18; did not result in an actual loss of safety function of a system; did not increase the likelihood of a fire; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.
Inspection Report# : 2005002*(pdf)*

**Significance:** G Mar 24, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Unplanned loss of water fire supression due to an inadequate testing procedure.**
A self revealing noncited violation of Technical Specification 5.4.1.d, "Fire Protection Program," was identified after the licensee inadvertently isolated all plant fire water suppression from the reactor, auxiliary, control, and turbine buildings during surveillance testing. The isolation resulted in the unplanned loss of all fire water to the reactor, auxiliary, control, and turbine buildings. The isolation occurred due an inadequate surveillance testing procedure. The licensee identified the isolation of the fire loops after about 15 minutes. The licensee reestablished the fire water suppression system after about 1.5 hours. This finding had crosscutting aspects regarding human performance in that the procedure used was inadequate.

The finding is greater than minor because the unplanned isolation of fire water was associated with the "Protection Against External Factors," attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure availability of systems designed to respond to initiating events. The inspectors used Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to analyze this finding because the condition had an adverse affect on fire defense-in-depth strategies. The senior reactor analyst evaluated the finding based on a bounding calculation for each fire area affected by the loss of fire water in the plant. The analyst concluded a plant-wide fire mitigation probability of 4.3 x 10-6 over the 2-hour exposure period. The analyst assumed that the maximum Conditional Core Damage Probability for any fire area was bounded by probability used to assess fires requiring control room evacuation (CCDP=0.1). The maximum resulting core damage probability from internal fires over the 2-hour period was the product of the plant-wide fire mitigation probability and 0.1. This bounded the risk of the finding resulting in no greater increase in core damage frequency than 4.3 x 10-7. The analyst concluded that a systematic search and assessment effort was beyond the intended scope of the fire protection significance determination process. Therefore, in accordance with NRC Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Section 05.04.c, regional management reviewed this finding and determined that it was of very low risk significance.
Inspection Report# : 2005002*(pdf)*

**Significance:** G Mar 24, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to maintain the minimum number of fire brigade members on site.**
An NRC identified noncited violation of Technical Specification 5.4.1.d, "Fire Protection Program," was identified after the licensee failed to maintain the minimum number of fire brigade members on site. The inspectors identified that the licensee did not maintain minimum fire brigade staffing. The licensee was required to maintain at least five fire brigade members on site at all times. Between January 24 and February 9, 2005, the outside equipment operator was assigned to the fire brigade 68 percent of the time. However, the outside equipment operator spent about 80 percent of the shift outside of the protected area, including attending equipment at the river pumping station, located eight miles from the site. The inspectors concluded that full fire brigade staffing would have been delayed about 20 to 30 minutes if the activation occurred while the equipment operator was performing outside duties. This finding had crosscutting aspects regarding human performance in that full fire brigade staffing was not ensured. This finding also had crosscutting aspects regarding problem identification and resolution in that the issue was not properly evaluated following documentation in the corrective action program twice.

This finding is greater than minor because the reactor safety mitigating systems cornerstone objective attribute to provide protection against external factors was affected. Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," does not address fire brigade performance deficiencies. Regional management review concluded this finding was of very low safety significance because it affected the fire prevention and administrative controls category and represented only a short duration degradation in fire brigade staffing.
Inspection Report# : 2005002*(pdf)*

**Significance:** G Dec 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Maintain the Integrity of an Auxiliary Building Fire Door**
The inspectors identified a noncited violation of Technical Specification 5.4.1.d, "Fire Protection Program," after the licensee failed to maintain the integrity of an auxiliary building fire door. The inspectors identified that the fire door would not provide the rated fire confinement function because of a broken latch. The door provided the 3-hour fire barrier between auxiliary building fire Areas A-19 and A-20. The licensee had several prior opportunities to identify the degraded fire door. The plant security procedure required plant security officers to verify that the fire door was properly latched during each patrol. Several security patrols passed through the door each shift. This finding had crosscutting aspects related to human performance (personnel) in that the plant procedure regarding verification of fire doors was not followed.

This finding is greater than minor because the fire door was associated with the mitigating system cornerstone attribute to provide protection against external factors. The inspectors concluded that the degraded door was a fire confinement finding with a high degradation rating due to the broken latch. This finding is of very low safety significance because the degraded door did not separate unique potential fire damage targets

and that the door would have provided at least 20 minutes fire endurance protection. The inspectors also concluded that no fixed or in-situ fire ignition sources or combustible or flammable materials were positioned such that the degraded door would have been subject to direct flame impingement.
Inspection Report# : 2004005*(pdf)*

**Significance:** G Dec 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Establish Required Fire Watch.**
The inspectors identified a noncited violation of Technical Specification 5.4.1.d, "Fire Protection Program," after a plant fire occurred when the licensee failed to establish a required fire watch. A welder ignited a fire on the communication corridor roof. The fire burned through the roof and ignited the ceiling below. The licensee had not established a fire watch inside the room. The plant fire brigade responded and extinguished the fire. The fire brigade left the area without establishing a re-flash fire watch. About 55 minutes later, an equipment operator returned to the room and identified that the fire had reignited. The plant fire brigade responded again and extinguished the re-flash fire.

This finding is greater than minor because the mitigating systems cornerstone attribute providing protection against external factors was affected. This finding had an adverse affect on the licensee's fire protection defense-in-depth strategies related to fire detection, manual suppression, and fire brigade effectiveness. The inspectors concluded that the lack of a fire watch degraded the licensee's early fire suppression capability and resulted in the fire prevention finding with a high degradation rating. The inspectors determined that this finding is of very low significance because the fire ignition source could not have caused ignition of secondary combustible fuels and was not close enough to sufficient surrounding combustibles to cause damage consistent with any of the plant fire damage scenarios.
Inspection Report# : 2004005*(pdf)*

**Significance:** G Dec 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
**Postmaintenance Test Failed to Identify Degraded Turbine Driven Auxiliary Feedwater Pump Bearing Cooling Following Maintenance.**
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," after postmaintenance testing was not adequate to identify degraded turbine-driven auxiliary feedwater pump bearing cooling following maintenance. The licensee completed an overhaul of the turbine, performed a postmaintenance test, and returned the system to service. Twenty-four days later, the licensee observed elevated inboard turbine bearing temperatures during a surveillance test. The elevated temperatures were caused by an obstruction in the lube oil cooler. The lube oil filter had been improperly installed during the overhaul and allowed particulate material to bypass the filter. The inspectors identified that an elevated bearing temperature also occurred during the earlier postmaintenance test. However, the licensee did not monitor bearing temperatures during the test nor was postmaintenance testing performed for a sufficient duration to allow the turbine to reach normal operating temperatures. This finding had crosscutting aspects regarding human performance (personnel) for failure to adequately test the turbine-driven auxiliary feedwater pump following maintenance, and problem identification in that indications were present during an earlier test that should have alerted the licensee to the condition.

This finding is greater than minor because, if left uncorrected the condition would become a more significant safety concern. This finding is only of very low safety significance because the condition was not a design or qualification deficiency confirmed to result in loss of function per Generic Letter 91-18; did not result in an actual loss of safety function of a system; did not increase the likelihood of a fire; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.
Inspection Report# : 2004005*(pdf)*

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# Barrier Integrity

**Significance: TBD** Sep 23, 2005
Identified By: Self-Revealing
Item Type: AV Apparent Violation
**Operator error resulted in the loss of configuration control while shutdown.**
A self-revealing apparent violation of Technical Specification 5.4.1.a, "Procedures," was identified after an operator error resulted in the failure to maintain the required cold overpressure mitigation system configuration while the reactor was in Mode 5. Technical Specification 3.4.12, "Cold Overpressure Mitigation System," prohibited more than one centrifugal charging pump from being capable of injecting into the reactor vessel. An operator inadvertently defeated administrative controls and enabled a centrifugal charging pump during a diesel generator and sequencer test restoration lineup on September 20, 2005. Contributing causes to the event were inadequate procedural controls and pre-job brief. This issue was entered into the corrective action program as Callaway Action Request 200507092. This finding, which involved the failure of an operator to follow procedure, was associated with the crosscutting area of human performance.

This finding is greater than minor because, if left uncorrected, it would have become a more significant safety concern involving the integrity of the reactor coolant system boundary (barrier integrity cornerstone). The finding was evaluated using Manual Chapter 0609, "Significance

Determination Process," Appendix G, Shutdown Operations Significance, Checklist 2. Although the performance deficiency did not result in a Technical Specification violation, discussions with the Office of Nuclear Reactor Regulation identified a Phase 3 analysis should be performed and is currently under evaluation.
Inspection Report# : 2005004*(pdf)*

**Significance:** G Sep 23, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
**Ineffective corrective actions resulted in degraded control building habitability boundary.**
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, "Corrective Action," after ineffective corrective actions resulted in a repeat degradation of a control building emergency ventilation habitability boundary door. AmerenUE's work control organization twice authorized work on the essential switchgear room to emergency diesel generator room door without approval of the shift operations department. As a result, shift operations did not understand that the habitability boundary had been compromised by the maintenance. This finding, which involved ineffective corrective actions to prevent the repeat degradation of the ventilation system habitability boundary door, was associated with the crosscutting area of problem identification and resolution.

This finding was greater than minor because it was associated with the integrity of the control building pressure envelope in that the degraded door would not meet its habitability function. The finding was only of very low safety significance because the finding only represented a degradation of the radiological barrier function provided for the control room.
Inspection Report# : 2005004*(pdf)*

**Significance:** G Dec 31, 2004
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**An Operator Error Resulted in an Unplanned Transfer of Water from Spent Fuel Pool.**
A self-revealing noncited violation of Technical Specification 5.4.1.a, "Procedures," was identified after an operator error resulted in the unplanned transfer of 3600 gallons of water from the spent fuel pool. The operating procedure required the operator to shutdown refueling water storage tank recirculation before placing fuel pool cleanup in service. The operator failed to shutdown the recirculation lineup resulting in the unplanned spent fuel pool water loss. The operating crew recognized the decreasing spent fuel pool level and secured the recirculation after about 3600 gallons had been transferred.

This finding is greater than minor because if left uncorrected it would have become a more significant safety concern. The inspectors determined that this finding is only of very low significance because the condition only represented a degradation of the radiological barrier function provided by the spent fuel pool.
Inspection Report# : 2004005*(pdf)*

**Significance:** G Dec 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Correct Feedwater Isolation Valve Post Modification Deficiencies.**
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," after the licensee failed to correct deficiencies identified during post modification testing of the feedwater isolation valve actuators. The post modification test revealed that the feedwater isolation valves would not meet the Mode 3 closure times described in the licensing bases. The licensee dispositioned the deficiency without adequately correcting the deficiencies. The licensee had a second opportunity to identify the inadequate corrective actions when the Independent Technical Review Team assessed the post modification test results. The Independent Technical Review Team assessment was not effective in identifying the inadequate corrective actions. This finding has crosscutting aspects regarding failure to implement adequate corrective actions.

This finding is greater than minor because the failure of the feedwater isolation valves to meet closures times affected the barrier integrity cornerstone design control attribute to maintain the functionality of the fuel cladding, following a cooldown event, and to limit post accident containment pressure by isolating feedwater to the faulted steam generator. This finding is only of very low safety significance because the condition did not represent a degradation of the barrier function of the control room, auxiliary building, or spent fuel pool, nor did this finding represent an actual open pathway in the physical integrity of the containment, nor affect the atmospheric pressure control or hydrogen control functions of containment.
Inspection Report# : 2004005*(pdf)*

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# Emergency Preparedness

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# Occupational Radiation Safety

**Significance:** G Jun 02, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
**Violation of 10 CFR 20.1201(f) for failure to reduce individuals exposure margin.**
The team identified a non-cited violation of 10 CFR 20.1201(f) when the licensee failed to reduce the dose that individuals may be allowed to receive in the current year by the amount of occupational dose received at other facilities. Specifically, on May 16, 2005, the licensee failed to enter inspectors' year-to-date exposure into the PRORAD computer system and subsequently reduce their allowable exposure margin.

The finding is greater than minor because it was associated with a Occupational Radiation Safety cornerstone attribute (Program & Process) and it affected the associated cornerstone objective. The failure to reduce exposure margins to control personnel exposure decreases the licensee's ability to ensure adequate protection of the worker health and safety from exposure to radiation. The significance of the finding was evaluated using the Occupational Radiation Safety Significance Determination Process because the finding involved an individual worker's potential for unplanned, unintended dose resulting from actions contrary to NRC regulations. The finding was determined to be of very low safety significance because the finding did not involve; (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for an overexposure, or (4) an impaired ability to assess dose. Additionally, this finding had cross-cutting aspects associated with human performance. Licensee personnel directly contributed to the finding when they failed to enter workers' exposure into the licensee's dose tracking computer system. The finding was placed into the licensee's corrective action program as CAR 2005-03354.
Inspection Report# : 2005011*(pdf)*

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# Public Radiation Safety

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# Physical Protection

Physical Protection information not publicly available.

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# Miscellaneous

Last modified : November 30, 2005