Callaway
4Q/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)*

Mitigating Systems

Significance: G Dec 31, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Minimum gap size exceeded for containment recirculation sump.
The inspectors identified a noncited violation of 10 CFR Part 50, Criterion X, after plant quality control personnel performed an inadequate inspection of an emergency core cooling system containment recirculation sump. The inspection failed to identify a 1½-inch hole which provided a path for foreign material into the containment sump which could affect the recirculation mode of emergency core cooling system operation. AmerenUE completed a detailed inspection of the sump on April 27, 2004 in response to NRC Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors," but failed to identify the 1½ -inch hole. This issue was entered into the corrective action program as Callaway Action Request 200509189.

This finding is greater than minor because it is associated with the mitigating systems cornerstone attribute of equipment performance and affects the associated cornerstone objective to ensure availability and reliability of the containment recirculation sump emergency core cooling system containment safety function. This finding is of very low safety significance because the condition was a qualification deficiency confirmed not to result in loss of function per Part 9900, Technical Assessment; "Operability Determination Process for Operability and

Functional Assessment." The cause of this finding, poor attention to detail by personnel, is related to the crosscutting element of human performance.

Inspection Report# : 2005005*(pdf)*

Significance: Dec 31, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to adequately implement continuous compensatory fire watches.
The inspectors identified a noncited violation of Technical Specification 5.4.1, "Procedures," associated with seven examples of inadequately performed continuous fire watches. In September 2005, AmerenUE provided verbal guidance to fire watch personnel that continuous watches may be met by a 15 minute roving fire patrol. The roving patrol did not ensure adequate compensatory action for fire areas with degraded detection or suppression capability. As a result, fire watch personnel were not available to promptly detect, report, and extinguish a fire while still in the incipient stage. AmerenUE did not evaluate this change to ensure no adverse affect on the ability to achieve and maintain safe shutdown in the event a fire was created. The condition was entered into the corrective action program as Callaway Action Request 200510325. The cause of this finding is related to the crosscutting element of human performance because the resources needed to support the task, including complete and accurate procedures and supervision, were less than adequate.

This finding is greater than minor because inadequate fire watches are associated with the reactor safety mitigating systems cornerstone attribute to provide protection against external factors and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance because the condition had an adverse affect on the "Fixed Fire Protection Systems" element of fire watches posted as a compensatory measure for outages or degradations. A low degradation rating was assigned to this finding as the provision affected by this finding is expected to display nearly the same level of effectiveness and reliability.
Inspection Report# : 2005005*(pdf)*

Significance: Dec 31, 2005
Identified By: NRC
Item Type: FIN Finding
Failure to Conduct Simulator Testing in Accordance with ANSI/ANS 3.5-1998
The inspectors determined that the failure to adhere to ANSI/ANS 3.5-1998, as endorsed by Regulatory Guide 1.149 "Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations,"Revision 3, October 2001, as committed to in the Callaway Plant Simulation certification dated March 13, 2000, was a finding. Specifically, the simulator performance testing did not meet the standards specified in ANSI/ANS 3.5-1998, in that: (1) all required parameters during the simulator test were not recorded; and (2) simulator to baseline data comparisons were unavailable.

The failure to evaluate and document simulator performance testing is more than minor because it affected the Operator Requalification attribute of the Mitigating Systems and Initiating Event cornerstone of reactor safety and is inconsistent with the requirements of 10 CFR 55.46 in that simulator fidelity issues may not be identified, which have the potential of causing negative training. The finding was considered to be of very low safety significance because the discrepancies have not yet impacted operator actions in the plant, such that, safety-related equipment was made inoperable or that operators failed to properly respond to plant transients.
Inspection Report# : 2005005*(pdf)*

Significance: Dec 31, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Use of a Non-Qualified Calculation in a Safety Related Modification
The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," associated with an inadequate engineering procedure used for the verification of design calculations. The inadequate procedure resulted in a non-qualified, non-safety-related engineering calculation being used to demonstrate that the safety-related containment recirculation sump valves were capable of performing the safety function described in the design bases. The performance deficiency associated with this finding involved the failure of engineering personnel to only use qualified calculations for safety-related applications. The cause of this finding is related to the crosscutting element of human performance because insufficient resources were provided to ensure complete and accurate procedures to support task performance. This finding was entered into the Corrective Action Program as Callaway Action Request 200509849.

This finding is greater than minor because if left uncorrected, this finding would become a more significant safety concern. This finding is determined to have very low safety significance because this issue involves a design deficiency confirmed not to result in loss of operability per Part 9900, Technical Guidance, "Operability Determination Process for Operability and Functional Assessment."
Inspection Report# : 2005005*(pdf)*

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)*

Barrier Integrity

Significance: G Dec 31, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Procedures Resulted in Violation of RCS Cooldown and Heatup Rate Limits.
The inspectors identified a noncited violation of Technical Specification 5.4.1.a, "Procedures," after AmerenUE Operations personnel failed to maintain the reactor coolant system temperature limits on two occasions. On November 7, 2005, plant operators decreased the reactor coolant system pressurizer surge line temperature 260 degrees Fahrenheit in a one-hour period. The operators conducted the rapid cooldown after several containment lead shield blanket polyvinylchloride covers left in containment melted. On November 8, 2005, plant operators increased the surge line temperature about 175 degrees Fahrenheit in a one-hour period. Plant Technical Specification 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and Plant procedures required reactor coolant system component temperature changes (except the pressurizer) be limited to 100 degrees in one hour. The cause of this finding is related to the crosscutting element of human performance because of personnel failure to follow procedures.

This finding was greater than minor because it is associated with the reactor safety barrier integrity cornerstone attribute of equipment performance and affects the associated cornerstone objective to ensure reasonable assurance that the reactor coolant system piping barrier will protect the public from radionuclide releases caused by accidents or events. This finding is determined to have very low safety significance because an engineering evaluation concluded that the temperature transient did not significantly increase the likelihood of a loss of reactor coolant system inventory or degrade the ability to terminate a leak path. This finding was placed in the Corrective Action Program as Callaway Action Requests 200509487 and 200509143.
Inspection Report# : 2005005*(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)*

Emergency Preparedness

Significance: G Jan 12, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
Change in Emergency Action Level 3E decreased the effectiveness of the Emergency Plan
The inspector identified a violation of 10 CFR 50.54(q) for implementing a change to emergency action levels, which decreased the effectiveness of the emergency plan. Emergency Implementing Plan Procedure EIP-ZZ-00101, "Classifying the Emergency," Revision 33, limited application of emergency action Level 3E, "Fire within Protected Area Boundary NOT Extinguished with 15 minutes of Verification" so that fires in some plant areas which would be classified under the previous revision may no longer be classifiable.

Implementation of changes to emergency action levels, which decreased the effectiveness of the emergency plan was a performance deficiency. The finding is more than minor because removal of a classifiable condition from licensee emergency action levels has the potential to impact safety, and licensee implementation of a change to their emergency plan, which decreases the effectiveness of the plan without prior NRC approval, impacts the regulatory process. This finding is a violation of 10 CFR 50.54(q). The licensee has entered this issue into their corrective action system as Corrective Action Report 200510162.
Inspection Report# : 2005005*(pdf)*

Occupational Radiation Safety

Significance: G Oct 21, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to control a high radiation area with dose rates greater than 1.0 rem per hour.
The inspector reviewed a self-revealing non-cited violation of Technical Specification 5.7.2 because the licensee failed to control a high radiation area with dose rates greater than 1.0 rem per hour. Specifically, on September 26, 2005, the reactor vessel head was moved from the head stand and placed back on the reactor vessel without the proper radiological controls in place for a high radiation area with dose rates as high as 6.0 rem per hour. A loud noise created by the falling of a locking device on the reactor head alerted radiation protection personnel that the head lift had begun prematurely. The licensee's immediate corrective actions were to ensure that individuals were not present in the high radiation area and to place the reactor head in a safe condition on the reactor vessel. The finding was entered into the licensee's corrective action program as Callaway Action Request 200507546.

The failure to control a high radiation area with dose rates greater than 1.0 rem per hour is a performance deficiency. The finding was greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation. The finding involved the potential for a worker's unplanned or unintended dose resulting from actions contrary to technical specifications. When processed through the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because the finding did not involve ALARA planning or work controls, there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised. In addition, this finding has crosscutting aspects associated with human performance because poor coordination and communication between the head lift crew and radiation protection personnel directly contributed to the finding.
Inspection Report# : 2005009*(pdf)*

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)*

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Significance: G Dec 31, 2005
Identified By: NRC
Item Type: FIN Finding
Less Than Adequate Spent Fuel Pool Water Inventory Risk Controls
The inspectors identified a finding after AmerenUE implemented less than adequate risk management controls of the spent fuel pool water inventory. On September 29, 2005, the core had been off-loaded to the spent fuel pool and the transfer canal weir was removed. The spent fuel pool temperature was 99 degrees Fahrenheit with a 12.1 hour time-to-boil. Transfer tube Valve ECV-995 isolated the fuel transfer canal from the containment cavity. In this configuration, the tube valve could provide a drain path reducing water level from 25 feet to less than 2 feet above the spent fuel. Valve ECV-995 was closed but was not identified in the shutdown risk management system and did not have administrative controls to protect against misalignment. NRC Information Notice 2005-16, "Outage Planning and Scheduling - Impacts on Risk," emphasized that most spent fuel pool events had a common thread of human error and involved equipment misalignment. This finding was entered into the Corrective Action Program as Callaway Action Requests 200507593 and 200507693.

This finding is greater than minor because if left uncorrected, it would have become a more significant safety concern. Because Manual Chapter 0609, "Significance Determination Process," does not specifically address findings related to the spent fuel pool inventory, this finding is determined to have very low safety significance based on NRC management review with input from senior reactor analysts. No violation of regulatory requirements occurred.
Inspection Report# : 2005005*(pdf)*

Last modified : March 03, 2006