

Callaway

Initiating Events



Significance: Dec 28, 2002

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate control of over temperature-delta temperature delta flux penalty circuit amplifier gain resulted in a reactor trip.

A noncited violation of 10 CFR Part 50, Appendix B, Criteria III, Design Control, occurred when the licensee failed to maintain control of the over temperature-delta temperature delta flux penalty circuit amplifier gain. The finding was greater than minor because the condition resulted in a transient initiator and contributed to an unplanned reactor trip, an initiating event. This finding was evaluated using Appendix A of the reactor safety significance determination process and determined to be of very low safety significance because the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigation equipment, and did not increase the likelihood of a fire or flood. This finding is in the licensee's corrective action system as Callaway Action Request System Number 200208352.

Inspection Report# : [2002006\(pdf\)](#)

Mitigating Systems

Significance: N/A Aug 23, 2002

Identified By: NRC

Item Type: FIN Finding

Assessment of corrective actions for inoperable auxiliary feedwater pump.

The NRC performed this supplemental inspection to assess the licensee's corrective actions associated with the inoperability of a motor-driven auxiliary feedwater pump. This performance issue was previously characterized as having low to moderate risk significance in NRC Inspection Report 50-483/02-07. During this inspection, the NRC concluded that the licensee had effectively identified and implemented corrective actions for the root and contributing causes for the inoperability of the auxiliary feedwater pump. Based on effective implementation of the corrective actions, it appeared that the inoperability of the pump as a result of foam being entrained in the suction of the pump, was adequately addressed. The effectiveness of the overall corrective action program changes documented in NRC Inspection Report 50-483/02-09, and the licensee's letter to NRC, dated May 8, 2002, will be reviewed during the Problem Identification and Resolution inspection, currently scheduled for December 2002. The performance issue associated with the White inspection finding will remain open until that review is completed.

Inspection Report# : [2002009\(pdf\)](#)



Significance: Jul 06, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate corrective action for diesel generator overspeed trip switch.

A noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, occurred because the corrective action taken by the licensee regarding the emergency diesel Generator B overspeed trip switch was inadequate. On June 21, 2001, the screws that held the overspeed trip switch intact were found to be loose. The emergency diesel generator had to be removed from service for repair. Repair consisted of tightening the screws that held the switch in place. No other repair action was taken nor was a root cause analysis conducted. On April 9, 2002, the same screws on the same switch were loose and found to be damaged. This also required the emergency diesel generator to be removed from service for repair. Procedure APA-ZZ-00500, "Corrective Action Program," Revision 31, required that a thorough root cause analysis be performed for this level deficiency. The corrective actions taken in response to the first failure, including the failure to perform a root cause analysis, were not adequate to prevent the second failure. This problem identification and resolution finding was more than minor because failure of the overspeed trip switch could have made the diesel generator inoperable. This finding affected the mitigating system cornerstone. The finding was found to be of very low safety significance using the significance determination process because the emergency diesel generator was not determined to be inoperable and the other emergency diesel generator was available. Because this finding was of very low safety significance, and the finding was entered into the licensee's corrective action program as Callaway Action Request System Numbers 200103939 and 200202342, it is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy (Section 40A2.1).

Inspection Report# : [2002002\(pdf\)](#)



Significance: Jun 25, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Unsecured fire door.

A noncited violation of Operating License Condition 2.C(5)(c) occurred when the licensee failed to take compensatory action when the 3-hour rated fire doors that separated the two trains of control room air conditioning were unlatched and not closed. This finding is more than minor because if a fire had occurred while the doors were unlatched and not closed, they could not perform their function of preventing a fire from spreading from one fire area to another fire area. This finding affected the mitigating system cornerstone. This finding was evaluated using Appendix F of the reactor safety significance determination process and determined to be of very low safety significance because the combustible load for the area was low and because the fire detectors on each side of the doors were operable. This finding was entered into the licensee's corrective action system as Callaway Action Request System Number 200204041.

Inspection Report# : [2002002\(pdf\)](#)G**Significance:** May 24, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control design input for degraded voltage relay calculation.

Calculation E-B-21, "LSELS Degraded Voltage Setpoint Calculation," Revision 0, used to determine the degraded voltage relay dropout setting, referred to superseded calculations for important design inputs, and had not been updated to reflect plant configuration and loading changes. This was contrary to the requirement in Procedure EDP-ZZ-04023 that calculations be revised whenever a new or revised calculation (having an effect on the calculation) is issued. The failure to follow procedural requirements was identified as a violation of Criterion V to 10 CFR Part 50, Appendix B, "Instructions, Procedures, and Drawings." This finding was of very low safety significance since there was no actual loss of safety function (the degraded voltage relay setpoint remained valid). Because of the low safety significance and the licensee's action to place the issue in their corrective action program (CARs 200203080 and 200203057), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy.

Inspection Report# : [2002004\(pdf\)](#)G**Significance:** May 24, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate calculation of diesel loading.

Requirements in Procedure EDP-ZZ-04023, "Calculations", Revision 14, were not applied correctly to the diesel generator steady-state loading calculation contained in Callaway Drawing E-21005, "List of Loads Supplied by Emergency Diesel Generator," Revision 25. The drawing functioned as a calculation, but lacked the quality requirements for calculations required by this procedure. The failure to follow procedural requirements was identified as a violation of Criterion V to 10 CFR Part 50, Appendix B, "Instructions, Procedures, and Drawings." This finding was of very low safety significance since there was no actual loss of safety function (the diesel generators retained adequate margin). Because of the low safety significance and the licensee's action to place the issue in their corrective action program (CAR 200203017), this violation is being treated as a noncited violation in accordance with Section VI.A.1 of the Enforcement Policy.

Inspection Report# : [2002004\(pdf\)](#)G**Significance:** May 24, 2002

Identified By: NRC

Item Type: FIN Finding

Incomplete and incorrect methods to evaluate degraded voltage conditions.

Two licensee calculations contained incomplete and incorrect methods of evaluating degraded voltage conditions. Calculation E-B-21, "LSELS Degraded Voltage Setpoint Calculation," Revision 0, did not consider the voltage requirements for non-motor loads in determining the degraded voltage relay setting. In addition, Calculation ZZ-214, "Motor Operated Valve Feeder Cable Voltage Drops," Addenda 1, Revision 2, for determining minimum voltage to motor-operated valves, did not consider the effect of motor starting currents in circuit elements upstream of the motor control centers. This finding, which did not involve a violation of NRC requirements, was of very low safety significance because the calculation errors did not result in an actual loss of safety function (the degraded voltage relay setpoint remained valid).

Inspection Report# : [2002004\(pdf\)](#)G**Significance:** Apr 23, 2002

Identified By: Self Disclosing

Item Type: FIN Finding

Foreign material in condensate transfer system.

A leather weld rod pouch lodged inside the fill valve to the condensate storage tank could have adversely affected the auxiliary feedwater system if the pouch became dislodged while filling the tank. This finding is more than minor because the lack of foreign material exclusion controls could have resulted in the leather weld rod pouch entering the condensate storage tank and adversely affecting the auxiliary feedwater

system. This finding affects the mitigating system cornerstone. This finding was found to be of very low safety significance using the reactor safety significance determination process because no loss of safety function occurred and only one of three auxiliary feedwater pumps would have been affected. This finding was entered into the licensee's corrective action program as Callaway Action Request System Number 200202678.

Inspection Report# : [2002002\(pdf\)](#)

Significance: N/A Mar 13, 2002

Identified By: NRC

Item Type: FIN Finding

Supplemental inspection results

This supplemental inspection was performed by the NRC to assess the licensee's evaluation of the event that occurred between February 9 - 15, 2001, where one train of Essential Service Water had been rendered inoperable for approximately 132 hours. If a loss of offsite power had occurred while a train of essential service water was inoperable, the Train B safety systems supported by essential service water, including an emergency diesel generator, would not have been available to perform their safety function. The finding was previously characterized as having low to moderate safety significance (White) in NRC Inspection Report 50-483/01-09. During this supplemental inspection performed in accordance with Inspection Procedure 95002, the inspectors determined that the licensee performed a thorough evaluation of the causes pertaining to the inoperable Essential Service Water pump and correctly identified the extent of the conditions for having one train of Essential Service Water inoperable for approximately 132 hours. The licensee's evaluation identified the primary root causes of the performance issues to be: (1) personnel did not know that they needed to secure the drain hose because corrective action from a previous event did not preclude foreign material from entering the suction bay for the essential service water pump, (2) the drain hose was not adequately secured because there was no procedure for the job, (3) the drain hose was not adequately secured because important information that should have been covered during the pre-job brief was omitted, (4) personnel did not know that they needed to secure the drain hose because safety precautions and warnings were left out of the work package, (5) personnel that saw or were informed of the presence of a funnel without a drain hose did not have a questioning attitude, (6) the control room took over one hour to enter Technical Specification 3.0.3 after declaring "B" Essential Service Water system inoperable because personnel found the procedure difficult to use, and (7) the control room took over one hour to enter Technical Specification 3.0.3 after declaring "B" Essential Service Water system inoperable because training was not repeated enough times so that information could be learned and skills practiced. With regard to the extent of condition, the licensee found that the first five root causes identified extended throughout the plant for both installation of leakage control devices and foreign material exclusion. The licensee specified appropriate corrective actions to address the root causes and had implemented these actions by January, 2002. Because of the licensee's acceptable performance in addressing the inoperability of the "B" Essential Service Water system, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters, in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." Implementation of the licensee's corrective actions will be reviewed further during a future inspection.

Inspection Report# : [2002008\(pdf\)](#)



Significance: G Mar 13, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Foreign object renders B Essential Service Water pump inoperable

A noncited violation of Technical Specification 3.0.3 occurred five times during the time that the Essential Service Water pump was inoperable, three of which exceeded the one hour requirement for initiating actions identified in Technical Specification 3.0.3. Specifically, on February 14, 2001, at 8:51 a.m., the licensee declared the ESW Pump B inoperable due to a tygon tube drain line becoming entwined around the pump impeller. At the same time, Containment Cooler C was out of service for planned maintenance. This met the conditions for entry into TS 3.0.3. The licensee restored the containment cooler to service at 11:15 a.m., which was 2 hours and 32 minutes after when Technical Specification 3.0.3. should have been entered. Four other instances were identified where TS 3.0.3 should have been entered, two of the four times exceeded the one-hour action requirement identified in the TS. Due to the fact that the licensee was unaware that the ESW pump was inoperable from 2:15 p.m. on February 9 until 8:51a.m. on February 14, 2001, they had not realized that they had entered TS 3.0.3 several times. The finding was more than minor because it had an actual impact on safety in that one of the essential service water pumps was rendered inoperable for a duration greater than the allowed outage time while the plant was in a mode of operation that requires the ESW system to be operable. This finding was found to be of very low safety significance because the other train of Essential Service Water was always operable, and there was no actual emergency requiring the operation of the essential service water system. Because the finding is of very low safety significance and the finding was entered into the licensee's corrective action program as Callaway Action Request 200100515, the associated finding is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002008\(pdf\)](#)



Significance: G Mar 13, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to promptly identify the need for and implement corrective action to address the degraded condition of the Auxiliary Feedwater System Train B

During the independent review, the team determined that the licensee failed to promptly identify the need for and implement corrective action to address the flow anomaly condition of the auxiliary feedwater system Train B that existed between February 2000 and March 28, 2001, where the flow through the recirculation valve was below the required flow. The condition had a credible impact on safety since the flow

anomaly had only been addressed from the standpoint of pump performance and operability and not system performance and required train function. However, since there was no actual loss of safety function and the system would have delivered the required minimum of 500 gpm to two steam generators when the function was required, the finding was considered to be of very low safety significance. Because of the very low safety significance and because the licensee included the item in their corrective action program by reopening Callaway Action Request 200000669 on March 1, 2002, this violation is being treated as a noncited violation (50-483/0208-01) in accordance with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2002008\(pdf\)](#)



Significance: Feb 27, 2002

Identified By: NRC

Item Type: VIO Violation

Failure to promptly identify and correct a significant condition adverse to quality.

Between January 1992 and January 31, 2002, several opportunities were missed to promptly identify and correct a significant condition adverse to quality involving foreign material in the auxiliary feedwater system and condensate storage tank. The failure to promptly identify the degraded condition resulted in the failure of an auxiliary feedwater pump on December 3, 2001. In addition, between January 25 and 29, 2002, the identification of a significant condition adverse to quality involving the as-found condition of the degraded diaphragm seal was not reported to the appropriate levels of management. The multiple examples of missed opportunities to identify a significant condition adverse to quality was a violation of 10 CFR Part 50, Appendix B, Criterion XVI and also represented a significant human performance cross cutting issue involving the timely recognition of degraded conditions. The finding had greater than minor significance because there was a credible impact on plant safety. Specifically, auxiliary feedwater Pump A failed to run when started by operations personnel during a plant shutdown. Had a plant event occurred, the potential existed for foam from the degraded condensate storage tank diaphragm to fail one or more auxiliary feedwater pumps. The failure of an auxiliary feedwater pump would have adversely affected the decay heat removal critical safety function. A Significance Determination Process Phase 3 analysis preliminarily determined that the issue had low to moderate safety significance (White). This finding was entered in the licensee's corrective action program as Callaway Action Request System Item CARS 200107423.

Inspection Report# : [2002007\(pdf\)](#)



Significance: Feb 27, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

Failure to verify calculational methods.

Calculations for auxiliary feedwater pump net positive suction head did not account for nitrogen saturated water. The failure of calculational methods to verify the adequacy of net positive suction head requirements for the auxiliary feedwater pumps was a violation of 10 CFR Part 50, Appendix B, Criterion III. The failure to account for nitrogen saturated water in the net positive suction head calculation for the AFW pumps was more than minor because there was a credible impact on safety in that the available margin of net positive suction head was reduced by 11 feet. Using Phase 1 of the Significance Determination Process, the issue was determined to be of very low safety significance because adequate available net positive suction head remained after accounting for dissolved nitrogen. Therefore, the auxiliary feedwater pump would have remained available during an actual plant event. The finding was entered in the licensee's corrective action program as Callaway Action Report System Item CARS 200200485.

Inspection Report# : [2002007\(pdf\)](#)



Significance: Feb 08, 2002

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate corrective action to address auxiliary feedwater system vibration.

A noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, occurred when the licensee failed to take corrective action to ensure that abnormally high vibration on both motor driven trains of the auxiliary feedwater system was corrected. During the past 12 years, the licensee had identified this condition five times. The licensee did not determine the actual cause of auxiliary feedwater piping vibration and consequently did not take appropriate corrective action. This finding included crosscutting aspects in the area of problem identification and resolution. The finding was more than minor because it had a credible impact on safety in that, if this vibration had occurred when auxiliary feedwater was needed, it could have affected operation of the system. This finding affects the mitigating system cornerstone. This finding was found to be only of very low safety significance because the likelihood that the system would be operated in the condition that caused the abnormally high vibrations was low, nondestructive examinations revealed no piping degradation, and because no vibrations were observed on the turbine driven auxiliary feedwater train. Because the finding is of very low safety significance, and the finding was entered into the licensee's corrective action program as Callaway Action Request System Number 200200881, the associated violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy

Inspection Report# : [2001007\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Feb 27, 2002

Identified By: NRC

Item Type: FIN Finding

Deficiencies with implementation of corrective action and operability evaluation programs.

The team determined that several opportunities were missed to promptly identify and correct a risk significant condition adverse to quality involving the degraded condition of the condensate storage tank diaphragm seal. Quality assurance personnel were not actively involved in providing oversight of the event review team and root cause investigation processes. The event review team process did not ensure that statements were obtained from all personnel involved in the event. The corrective action program did not include guidance or expectations on the assignment of appropriate resources to review the highest classification of significant conditions adverse to quality. Minimal resources were initially assigned to the root cause investigation and may have contributed to the delay in identifying the degraded diaphragm seal. Based on interviews with the licensee's staff and a review of the corrective action program procedure, the team determined that licensed operators were only notified of equipment deficiencies if the individual discovering the condition believed there was an immediate impact on nuclear, plant, or personnel safety. Consequently, the potential existed for operability decisions to be made by non-licensed personnel. The operability evaluation program did not implement the guidance provided in NRC Generic Letter 91-18, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions."

Inspection Report# : [2002007\(pdf\)](#)

Significance: SL-III May 14, 2001

Identified By: NRC

Item Type: VIO Violation

Discrimination against a security officer and a training instructor for having engaged in protected activity

10 CFR 50.7(a) prohibits discrimination by a Commission licensee against an employee for engaging in certain protected activities. On October 27, 1999, the security officer and the training instructor identified to the Wackenhut Corporation a violation of NRC requirements at the Callaway Nuclear Plant. Based at least in part on this protected activity, the Wackenhut Corporation unfavorably terminated the security officer's employment for lack of trustworthiness and gave a written reprimand to the training instructor on November 19, 1999. In consideration of the severity of the actions taken against the former security officer and the training instructor, the level of management involved in the adverse action, and the nature of contractor/licensee relationships, this violation has been categorized in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600 at Severity Level III (EA-01-005, dated May 14, 2001).

Inspection Report# : [2001003\(pdf\)](#)

Last modified : March 25, 2003