Callaway
4Q/2004 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2004
Identified By: Self Disclosing
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)*

Significance: G Mar 24, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Safety injection due to operator error
A self-revealing finding and a noncited violation of Technical Specification 5.4.1, "Procedures," was identified after an operator error resulted in an unplanned safety injection and main steamline isolation. The operator failed to place pressurizer pressure control in automatic during plant heatup operations. Pressurizer pressure exceeded the Permissive P-11 setpoint, while the main steamline pressure was still below the safety injection setpoint.

This finding is greater than minor because the safety injection was a transient initiator contributor affecting the initiating events cornerstone. The operator's failure to follow the procedure was a performance deficiency which affected the human performance attribute of the initiating events cornerstone. The inspectors concluded that this finding is of very low safety significance because the condition did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator, did not contribute to a loss of mitigation of equipment functions, and did not increase the likelihood of a fire or internal/external flood.
Inspection Report# : 2004002*(pdf)*

Significance: G Mar 24, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Reactor trip during power ascension
A self-revealing finding and a noncited violation of Technical Specification 5.4.1, "Procedures," was identified after an operator error resulted in an unplanned reactor trip. The operator's action to open the main feedwater regulating valves, before the plant was stable and at the

prescribed power level, was the direct cause of the reactor trip.

This finding is greater than minor because the reactor trip was a transient initiator affecting the initiating events cornerstone. The operator's failure to follow the procedure was a performance deficiency which affected the human performance attribute of the initiating events cornerstone. The inspectors determined this finding to be of very low safety significance (Green), because the condition did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator, did not contribute to a loss of mitigation of equipment functions, and did not increase the likelihood of a fire or internal/external flood. The licensee placed the issue into the corrective action program as CAR 200401167.
Inspection Report# : 2004002*(pdf)*

Mitigating Systems

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)*

Significance: G Sep 28, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to test automatic recirculation control valves recirculation isolation feature.
A noncited violation of 10 CFR Part 50, Appendix B, Criteria XI, "Test Control," was identified for the failure to establish a test procedure with appropriate acceptance criteria to verify the proper operation of the auxiliary feedwater system automatic recirculation control valves. This issue was entered into the corrective action program as Callaway Action Request 200407321.

The finding is greater than minor because it affected the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding is associated with the cornerstone attribute of procedure quality. Using the Phase 1 worksheet in Manual Chapter 0609, "Significance Determination Process," this finding is determined to be of every low safety significance because there was no actual loss of a safety function.
Inspection Report# : 2004008*(pdf)*

Significance: G Sep 23, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate selection and suitability review of installation of lead radiation shield blankets in containment.
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, after the licensee failed to perform an adequate selection and suitability review prior to installing 132 lead radiation shield blankets in containment. The licensee did not address the effect that blankets may have on safety related equipment during accident conditions. During an accident, some of the blanket coverings/coatings may deteriorate into foreign material and be transported to the containment sump. Once at the sump, this foreign material may challenge emergency core cooling system recirculation function by reducing the available net positive suction head to the residual heat removal and containment spray pumps.

The finding is greater than minor because it affected the cornerstone objective to ensure availability and reliability of the containment sump. 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 GL 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, fire, flooding, or severe weather initiating event. The licensee placed this issue in their corrective action program as CAR 200404836.
Inspection Report# : 2004004*(pdf)*

Significance: G Mar 24, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate smoke alarm response procedure for control room supply.
The alarm response procedure for responding to smoke in the control room outside supply duct was inadequate because it did not direct operators to isolate outside air makeup upon receipt of the alarm. This alarm would not cause an automatic isolation of the control room, so operators must recognize the condition and take manual action to prevent losing control room habitability. Failure to have a procedure, required by Technical Specification 5.4.1.a and Regulatory Guide 1.33, that provided appropriate response actions for abnormal or alarm conditions was a violation. This issue was entered into the licensee's corrective action program under Callaway Action Request 200306977.

This issue was more than minor because failure to isolate the control room ventilation could lead to unnecessary evacuation, which would result in a plant transient and disabling much of the mitigation equipment that would otherwise be available. This issue was of very low safety significance because the frequency of the specific fire scenario necessary to cause an unnecessary control room evacuation was determined to be very small.
Inspection Report# : 2004002*(pdf)*

Significance: G Mar 24, 2004
Identified By: Self Disclosing

Item Type: FIN Finding
Loss of the TDAFW pump during a transient
A self-revealing finding was identified after the unplanned loss of the turbine- driven auxiliary feedwater pump during a plant transient. After a reactor trip, an operator improperly secured the turbine-driven auxiliary feedwater pump, which lead to an overspeed trip.

This finding was greater than minor because the loss of the turbine-driven feedwater pump affected the availability/reliability objective of the mitigating system equipment performance cornerstone. The inspectors concluded that this finding was only of very low safety significance because: it was not a design or qualification deficiency, it did not represent the actual loss of the safety function of a system, it did not represent the actual loss of the safety function of a single train for greater than its Technical Specification allowed outage time, it did not represent the loss of a non-Technical Specification related train (designated as risk significant per 10 CFR 50.65 a(4)) for greater than 24 hours, and it did not screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event. The licensee's placed the issue into the corrective action program as CAR 200401167.
Inspection Report# : 2004002*(pdf)*

Barrier Integrity

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)*

Significance: G Dec 31, 2004
Identified By: Self Disclosing
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 Apr 12, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Inadequate Work Instructions Resulted in the Failure of Residual Heat Removal Pump Seal.
Green. A self-revealing finding and noncited violation of Technical Specification 5.4.1, "Procedures," was identified after maintenance resulted in the failure of a residual heat removal pump seal during shutdown cooling operations. The licensee's maintenance work instructions were not adequate to ensure the mechanical seal matting ring surface was fully seated when replaced on March 31, 2004. The seal failed on April 11 after about 36 hours of operation.

This finding was greater than minor because it affected the barrier integrity cornerstone attribute of procedure quality, as related to maintenance procedures affecting the functionality of containment. The failed seal provided a containment leakage path for 7 gallons per minute reactor coolant. The inspectors evaluated the finding using the significance determination process for at-power situations because the issue involved the potential degradation of containment barrier integrity during power operations prior to the reactor shutdown on April 10. The finding was only of very low safety significance because the condition did not represent an actual open pathway in the physical integrity of reactor containment during power operation, was not an actual reduction of the atmospheric pressure control function of the reactor containment, and did not represent a degradation of a the control room auxiliary building or spent fuel pool barrier function. The licenses placed the issue into the corrective action program as CAR 200402749.
Inspection Report# : 2004003*(pdf)*

Significance: G Apr 02, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate procedure for implementation of TS 5.5.2.
The team identified a noncited violation of Technical Specification 5.4.1(e) for failure to establish an adequate procedure for evaluating emergency core cooling system leakage outside of containment as required by Technical Specification 5.5.2.

This finding was more than minor since it represented a programmatic weakness which, if left uncorrected could become a more significant safety concern. This finding screened as Green, very low safety significance, during the SDP Phase 1 analysis, because it only represented a degradation of the radiological barrier function provided for the control room and auxiliary building.
Inspection Report# : 2004006*(pdf)*

Emergency Preparedness

Significance: G Sep 23, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to classify and declare an unusual event following a fire in the protected area.
The inspectors identified a noncited violation of 10CFR50.54(q), 10CFR50.47(b)(4), and Section IV.B of Appendix E of 10CFR Part 50, which involved the failure to correctly classify an UE in accordance with the emergency plan and implementing procedures. The operations crew did not activate the emergency plan for a fire in the proteted area, adjacent to the control building, which lasted longer than 15 minutes from verification. This finding has human performance crosscutting aspects in that the licensee failed to properly apply event evaluation criteria.

This finding is more than minor because it affected the response organization performance attribute of the emergency preparedness cornerstone due to failure to properly recognize plant conditions commensurate with an UE classification. This finding was of very log safety significance, because it did not meet any higher level emergency plan and implementing procedure notification requirements. The licensee placed the issue into the corrective action program as Callaway Action Request 200407284.
Inspection Report# : 2004004*(pdf)*

Occupational Radiation Safety

Significance: G Jun 23, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Inadequate Operational Control Resulted in an Unexpected High Radiation Field.
Green. A self-revealing finding and NCV of Technical Specification 5.4.1 was identified after three plant workers were exposed to an unplanned high radiation area. The event was the result of inadequate operational control of the in-core system. The exposure occurred when a reactor engineer removed two in-core detectors from the core after control room personnel authorized a reactor building entry. The procedure used by the reactor engineer to operate the in-core system was not appropriate to the circumstances.

The inspectors used the occupational radiation safety determination processes to analyze the significance of the finding. This finding was greater than minor because it affected the programs and process attribute of the occupational radiation safety cornerstone. The use of the inappropriate procedure could have resulted in unplanned or unintended dose which could have been significantly greater as a result of a single, minor, alteration of the circumstances. The inspectors concluded the issue was of very low safety significance because the inspection finding was not related to as low as is reasonably achievable, did not involve an overexposure, and there was no substantial potential for overexposure. The licensee entered this issue into the corrective action program as Callaway Action Request 200402640. This issue was determined to have

crosscutting aspects regarding human performance.
Inspection Report# : 2004003*(pdf)*

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Significance: G Apr 02, 2004
Identified By: NRC
Item Type: FIN Finding
Identification and resolution of problems.
The team reviewed approximately 105 corrective action documents, 28 self-assessments and audits, and numerous procedures, industry information, and other documents. The team determined that there was a general improvement in implementation of the corrective action program; thresholds for identifying issues remained appropriately low, and in most cases, corrective actions were adequate to address conditions adverse to quality. However, in some instances, improper prioritization or the lack of a rigorous evaluation of problems continued to challenge the licensee. The team also concluded that a safety conscious work environment exists at Callaway, however some negative comments received during interviews indicated that efforts to improve in this area have not been completely effective.
Inspection Report# : 2004006*(pdf)*

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