Fort Calhoun
2Q/2004 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Abnormal Operating Procedure for High Winds Onsite
A noncited violation of Technical Specification 5.8.1 was identified as a result of Procedure AOP-01, "Acts of Nature," Revision 15, not requiring a visual inspection of the plant and site for structural damage following high winds. As a result, damage to the bus bars from House Service Power Transformer T1A-3 to a safety-related 4 kV bus occurred when a piece of the turbine building facade that was blown off during high winds went unnoticed for approximately 12 hours.

This finding was more than minor since it was associated with the protection against external factors attribute of the initiating events cornerstone. Using the significance determination process, the finding was characterized as having very low safety significance since it did not contribute to a loss-of-coolant accident, contribute to a reactor trip with a loss of mitigating equipment, nor increase the likelihood of fire or flooding and off-site power remained available.
Inspection Report# : 2004003*(pdf)*

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to ensure that an adequate procedure existed for properly venting the reactor vessel head
A noncited violation was identified as a result of the failure of the licensee to ensure that an adequate procedure existed for properly venting the reactor vessel head as required by 10 CFR Part 50, Appendix B, Criterion V. This resulted in a compressed bubble being formed in the reactor vessel and a false and nonconservative indicated reactor vessel level. This finding was more than minor since it is associated with the procedure quality attribute of the cornerstone. The finding was characterized as having very low safety significance because the core heat removal, inventory control, electrical power, containment control, and reactivity control support systems were available. This finding also had crosscutting aspects associated with human performance.
Inspection Report# : 2003006*(pdf)*

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to ensure that a procedure existed for the verification of the reactor coolant system parameters during a plant heatup
A noncited violation was identified as a result of the failure of the licensee to ensure that a procedure existed for the verification of the reactor coolant system parameters during a plant heatup as required by 10 CFR Part 50, Appendix B, Criterion V. This resulted in the control room staff being unaware of a recently added surveillance requirement to, in part, monitor reactor coolant system parameters during a heatup. This finding was more than minor since it is associated with the procedure quality attribute of the cornerstone. The finding was characterized as having very low safety significance because the plant heatup was performed using decay heat with the pressurizer was vented; therefore, the chance of exceeding pressure and temperature limits was minimal. This finding also had crosscutting aspects associated with human performance.
Inspection Report# : 2003006*(pdf)*

Mitigating Systems

Significance: G Jun 30, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failing to Ensure that Fire Barriers Protecting Safety-Related Areas Were Functional
A noncited violation of Technical Specification 5.8.1.c, Fire Protection Program Implementation, was identified for the failure to implement procedures to ensure that fire barriers protecting safety-related areas were functional. Specifically, between Rooms 62 and 69, gaps and openings existed in a barrier (a hinged metal plate) due to missing angle irons that would have allowed flame propagation between two fire areas.

This finding was more than minor since it was associated with the protection against external factors attribute of the mitigating systems cornerstone.

Using the Significance Determination Process, Manual Chapter 0609, Appendix F, the finding was determined to be in the Fire Confinement category because the fire barrier separated one fire area from another. A moderate degradation rating was assigned because there was defense-in-depth and more than a 20-foot separation between the degraded barrier and safety-related equipment. Performing the Phase 1 qualitative screening check, the finding was characterized as having very low safety significance since all potential damage targets in the exposed fire area were provided with passive fire barrier protection with no more than a moderate degradation that would provide a minimum of 20 minutes of fire endurance.
Inspection Report# : 2004003*(pdf)*

Significance: G Jun 30, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Povide Fire Protection Features for Components Important to Achieve and Maintain Cold Shutdown
A noncited violation of 10 CFR Part 50, Appendix R, was identified as a result of not providing fire protection features for structures, systems, and components important to achieve and maintain cold shutdown or having the capability of repairing these components within 72 hours. Specifically, the licensee did not provide proper cable separation nor the necessary fire protection features for the raw water pump cabling in Manhole 5. In addition, the licensee did not have a procedure and materials available to repair the cabling within 72 hours.

This finding was more than minor since it was associated with the protection against external factors attribute of the mitigating systems cornerstone. Using the Significance Determination Process, Manual Chapter 0609, Appendix F, the finding was determined to be in the Cold Shutdown category since the raw water pumps are needed to achieve and maintain cold shutdown. A moderate degradation rating was assigned because the concrete partition separating the trains would provide some fire protection. Performing the Phase 1 qualitative screening check, the finding was characterized as having a very low safety significance since it only affected the ability to reach and maintain cold shutdown conditions (Section 1R05.1b2).
Inspection Report# : 2004003*(pdf)*

Significance: G Jun 30, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Compensatory Measures When Blocking a Fire Hose Station
A noncited violation of Technical Specification 5.8.1.c, Fire Protection Program Implementation, was identified for the failure to implement compensatory measures when access to Fire Hose Station FP-7G was blocked by a safety barricade erected to support maintenance. The licensee did not stage a hose of equivalent capacity to service the unprotected areas from an operable hose station.

This finding was more than minor since it was associated with the protection against external factors attribute of the mitigating systems cornerstone. Using the Significance Determination Process, Manual Chapter 0609, Appendix F, the finding was determined to be in the Fixed Fire Protection Systems category since it affected the manual fixed fire suppression system. The degradation rating of the finding was high because the hose station was not usable. The finding was characterized as having a very low safety significance since it only affected the ability to reach and maintain cold shutdown conditions. This finding had crosscutting aspects associated with human performance.
Inspection Report# : 2004003*(pdf)*

Significance: G Jun 30, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Maintenance Personnel Failed to Follow Documented Instructions
A noncited violation of Technical Specification 5.8.1 was identified as a result of maintenance personnel failing to follow documented instructions. These actions caused a control room air conditioning unit to become inoperable while the other unit was already removed from service.

This finding was considered more than minor since it was associated with the equipment performance attribute of the mitigating systems cornerstone. The loss of the control room air conditioning unit will result in an increase in control room temperature and affect the performance of safety-related equipment in the control room. Using the significance determination process, the finding was characterized as having a very low safety significance because operators restarted the control room air conditioning equipment within approximately 10 minutes of the loss of control room cooling and the control room did not heatup significantly; therefore, all control room equipment remained operable. This finding had crosscutting aspects associated with human performance.
Inspection Report# : 2004003*(pdf)*

Significance: G May 14, 2004
Identified By: NRC
Item Type: FIN Finding
Failure to Determine the Extent of Pitting in Component Cooling Water Components and Correct the Causal Factors
A finding was identified for untimely actions to determine the extent of condition and correct the causal factors for heat exchanger tube pitting in the component cooling water system. The licensee had tentatively attributed the cause of pitting observed in Raw Water/Component Cooling Water Heat Exchangers AC-1A and A-1B tubes (on the component cooling water side) to microbiologically induced corrosion in a 1996 root cause assessment. Since 1996, the licensee had not obtained evidence in the form of biological samples to either support or refute that microbiologically induced corrosion was active in the component cooling water system, determined whether the condition existed in other components in the system, nor taken actions to arrest pitting. In particular, Shutdown Cooling Heat Exchangers AC-4A and AC-4B had material and environmental susceptibilities to microbiologically

induced corrosion and had not been inspected in over 20 years to determine the condition of the tubes. This issue has been entered into the licensee's corrective action program under Condition Reports 200401758 and 200401768. This finding was not considered a violation because it could not be determined whether pitting was occurring in unmonitored components. The licensee scheduled inspections of the three most significant heat exchangers for the next refueling outage to address this concern.

This issue was more than minor because, if left uncorrected, the pitting could become a through-wall leak, which would be a more significant safety concern. The finding affected the mitigating systems cornerstone. The finding was determined to have very low safety significance in a Phase 1 screening because this issue represented a deficiency that had not resulted in a loss of function.
Inspection Report# : 2004003*(pdf)*

Significance: G May 14, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Procedures to Address an Inadequate Technical Specification
A noncited violation of 10 CFR Part 50, Appendix B, Criterion V, was identified for failure to follow procedures to address an inadequate Technical Specification. The inspectors identified two examples where Technical Specification 2.4 was inadequate to assure that the heat removal safety function of the raw water and component cooling water systems was maintained. In 1996, engineering identified that certain river level and/or temperature conditions, in combination with equipment outages permitted by Technical Specification action statements, could result in inadequate heat removal capability during design basis events. In one case, the licensee failed to perform an assessment of the limitations on operability and the adequacy of Technical Specifications to assure those functions, as required by Procedure NOD-QP-31, "Operability Determinations and Safety Analysis for Operability," Revision 20, and Criterion V. Had this procedure been correctly followed, the licensee should have recognized that a Technical Specification change was required. The other example did not involve a violation but did require a change to the Technical Specification. This issue was entered into the licensee's corrective action program under Condition Reports 200401754 and 200401761.

This finding was more than minor because, if left uncorrected, this condition could result in a loss of the heat removal function. The finding affected the mitigating systems cornerstone. The finding was determined to have very low safety significance in a Phase 1 screening because this issue represented a design deficiency that had not resulted in a known loss of function.
Inspection Report# : 2004003*(pdf)*

Significance: G Mar 31, 2004
Identified By: NRC
Item Type: FIN Finding
Unauthorized Modification to Diesel-Driven Auxiliary Feedwater Pump Coupling Guard
A finding was identified as a result of the licensee performing an unauthorized modification to the coupling guard on the diesel-driven auxiliary feedwater pump. Licensee personnel wrapped red duct tape around the guard to reduce the excessive vibration due to broken welds on the guard. Since the diesel-driven auxiliary feedwater pump is not safety related, the unauthorized modification to the coupling guard was not a violation of requirements.

This finding was more than minor since it is associated with the equipment performance reliability attribute of the cornerstone. The finding was characterized as having very low safety significance because the pump remained available to support unit operations. This finding also had crosscutting aspects associated with human performance because personnel performed an unauthorized temporary modification to a coupling guard.
Inspection Report# : 2004002*(pdf)*

Significance: G Mar 31, 2004
Identified By: NRC
Item Type: VIO Violation
Inadequate Diesel Generator Surveillance Test Procedure Acceptance Criteria
A violation of 10 CFR Part 50, Appendix B, Criterion V, was identified as a result of the diesel generator test procedure not containing appropriate quantitative or qualitative acceptance criteria to determine operability of diesel generators when conducting the full speed starts of the diesel generators. The licensee's acceptance criteria did not account for a 2 hertz speed droop of the fully loaded diesel generator when selecting the minimum acceptable frequency. The licensee had previously received a noncited violation (NCV 05000285/2003005-02) as a result of a similar condition adverse to quality.

This finding was considered more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone in that the procedure did not contain appropriate quantitative acceptance criteria to ensure the capability of the diesel generator to meet its design basis requirements. The finding was characterized under the Significance Determination Process as having very low safety significance because the as-found diesel generator frequency and voltage were adequate to support the emergency core cooling system loads and no actual loss of safety function occurred. This finding also had crosscutting aspects associated with problem identification and resolution because the licensee failed to correct a previously identified violation.
Inspection Report# : 2004002*(pdf)*

Significance: G Mar 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation

Inadequate procedure for Long-Term Loss of Instrument Air
A noncited violation of 10 CFR Part 50, Appendix B, Criterion III, was identified as a result of not properly translating design requirements into procedures. Procedure AOP-17, "Loss of Instrument Air," Revision 5, did not provide adequate steps to respond to a prolonged loss of instrument air. Select valves were equipped with air accumulators or backup nitrogen supplies to maintain the valves operable after a loss of instrument air. The safety injection refueling water tank recirculation valves have a 30-day design mission time during a loss-of-coolant accident, but were provided with an accumulator capable of lasting 39 hours. If the accumulator were to become expended, the valves would fail open and divert water from containment recirculation to the safety injection refueling water tank.

This finding was more than minor because it was related to the equipment performance availability attribute of the mitigating systems cornerstone objective and the design and configuration control attributes of the barrier integrity cornerstone objective. The senior reactor analyst determined that the safety injection refueling water tank recirculation valves would have remained closed throughout the risk-significant portion of their mission time. Additionally, the senior reactor analyst concluded that the likelihood of a loss-of-coolant accident combined with a loss of instrument air was sufficiently small so that further evaluation of the change in risk beyond the modeled mission time was not required. Therefore, the failure to have an adequate abnormal operating procedure for loss of instrument air represented a finding of very low risk significance.
Inspection Report# : 2004002*(pdf)*

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to establish performance monitoring goals as required by the Maintenance Rule
A noncited violation was identified as a result of the licensee not recognizing that a failure of RAW Water Pump AC-10B was a maintenance rule functional failure. Therefore, the licensee failed to monitor performance against established goals as required by 10 CFR 50.65(a)(1). This finding was more than minor since it met the example of a "not minor finding" in Inspection Manual Chapter 0612, Appendix E. The finding was characterized as having very low safety significance because the maintenance rule aspect of the finding did not cause an actual loss of safety function of the system nor did it cause a component to be inoperable. This finding also had crosscutting aspects associated with human performance
Inspection Report# : 2003006*(pdf)*

Significance: G Dec 12, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedure for Long-term Loss of Instrument Air
A non-cited violation of Technical Specification 5.8, "Procedures," and Criterion III of Appendix B to 10 CFR Part 50 was identified for inadequate procedures. Abnormal Procedure AOP-17 requires operators to monitor select backup nitrogen supply bottle pressures with the intent to replace the bottles as necessary to maintain the pressure supply to the air operated valves. The valves affected were containment spray header isolation valves and the safety injection and refueling water tank outlet valves. The supply of spare nitrogen bottles was not procedurally controlled and was found to be insufficient to implement the procedure. This issue was entered into the licensee's corrective action program under Condition Report 200305298.

This finding was more than minor because the mitigating systems cornerstone objective of maintaining the containment as a physical barrier to the release of radionuclides was affected by the procedure quality attribute. Specifically, the lack of spare nitrogen bottles had the potential to affect the leakage out of containment via the emergency core cooling system after a loss of instrument air. The finding screened as being of very low safety significance because it represented only a potential degradation of the radiological barrier function
Inspection Report# : 2003011*(pdf)*

Significance: G Dec 12, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Translate Design Basis for Preventing Containment Penetration Over-pressurization into Design
The team identified a finding of very low safety significance involving a noncited violation of Criterion III of Appendix B to 10 CFR Part 50 for the failure to correctly translate design information into calculations. Containment piping Penetrations M-9 and M-12 contained steam generator drain lines with valves that were normally locked closed prior to plant startup, trapping cold water. The licensee did not consider the possible substantial pressure increase when the associated steam generators reach normal operating conditions in two calculations that assessed containment piping penetrations for potential over pressurization, EA-FC-90-082 and FC05994. The licensee concluded that the installed valves would allow enough seat leakage to prevent overpressurizing the penetration, but this small leakage capability constitutes a design feature which is required to be documented and maintained. The licensee determined that the two calculations need to be revised. This finding was entered into the licensee's corrective action program under Condition Report 200305161.

This finding affected the containment barrier cornerstone because of the potential of for the loss of integrity of piping penetrating the containment vessel. This finding was more than minor because it was similar to Example 2.f of Appendix E of Manual Chapter 0612, in that the engineering staff had to perform a reanalysis and an operability evaluation due to this condition. This issue had very low safety significance because it only represents a degradation of the radiological barrier function for the auxiliary building.
Inspection Report# : 2003011*(pdf)*

Significance: G Sep 20, 2003

Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate testing of DG
A noncited violation of Technical Specification Surveillance Requirement 3.7(1)a.i was identified for the failure to adequately test the diesel generators. The licensee used a practice of alternating between the primary and secondary air start systems when performing the 184-day full speed starts of the diesel generators. In a normal alignment, only the primary air start system could start the diesel generator within the required 10-second Technical Specification requirement; the secondary air start system could not. When the diesel generators were tested using the secondary air start system, they were tested in an altered configuration with time delays disabled to ensure the diesel generators started within the required time and then were placed back into a normal untested configuration.

This finding was more than minor since it is associated with the equipment performance attribute of the mitigating systems cornerstone. The finding was characterized under the Significance Determination Process as having very low safety significance because there was no actual loss of function or operability of any safety-related equipment.
Inspection Report# : 2003005*(pdf)*

Significance: G Sep 20, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate DG surveillance test acceptance criteria
A noncited violation of 10 CFR Part 50, Appendix B, Criterion V, was identified as a result of the diesel generator test procedure not containing appropriate quantitative or qualitative acceptance criteria to determine operability of diesel generators when conducting the full speed starts of the diesel generators. The licensee's acceptance criteria did not account for a 2 hertz speed droop of the fully loaded diesel generator when selecting the minimum acceptable frequency. In addition, the procedure did not recognize that the steady state unloaded frequency of greater than 63 hertz would require decreasing the maximum ambient operability temperature of diesel generators.

This finding was considered more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone in that the procedure could not ensure the capability of the diesel generator to support emergency core cooling system components in response to an initiating event. The finding was characterized under the Significance Determination Process as having very low safety significance because the as-found diesel generator frequency and voltage were adequate to support the emergency core cooling system loads and no actual loss of safety function occurred.
Inspection Report# : 2003005*(pdf)*

Significance: G Mar 10, 2000
Identified By: NRC
Item Type: AV Apparent Violation
APPARENT VIOLATION OF 10 CFR PART 50, APPENDIX R, SECTION III.G.1.a FOR FAILURE TO ENSURE THAT ONE TRAIN OF SYSTEMS IN FIRE AREAS 34B AND 36B REQUIRED FOR SAFE SHUTDOWN IS FREE OF FIRE DAMAGE.
The team identified a condition where the licensee failed to ensure that one train of redundant systems, necessary for achieving and maintaining hot shutdown, located within the same fire area would remain free of fire damage. In particular, the team identified that a fire in Fire Area 34B (upper electrical penetration room) or Fire Area 36B (west switchgear room) could cause the spurious opening of the reactor coolant system head vent valves due to hot shorts. These spurious actuations could open a vent path from the reactor coolant system that exceeds the capacity to makeup to the reactor coolant system, as analyzed in the licensee's safe shutdown analysis. The licensee subsequently identified alternative means of makeup that would mitigate the effects of the event. The licensee disagrees that postulating multiple fire-induced circuit failures is required by NRC regulations or its operating license. This is an apparent violation of 10 CFR Part 50, Appendix R, Section III.G.1.a. This issue was evaluated using the significance determination process, and was determined to be within the licensee response band.
Inspection Report# : 2000001*(pdf)*

Barrier Integrity

Significance: G Jun 30, 2004
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Establish an Adequate Test Program for the Backup Nitrogen Supply Systems to the Component Cooling Water Inlet and Outlet Valves to the Containment Air Cooling Units
A noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, was identified as a result of the licensee's failure to establish a test program to demonstrate that the backup nitrogen supply systems to the component cooling water inlet and outlet valves to the containment air cooling units would perform satisfactorily. The licensee only performed leak rate testing of the backup nitrogen supply systems with the component cooling water inlet and outlet valves in the closed position and did not leak test the backup nitrogen supply systems with the inlet and outlet valves in the open accident position.

This finding was more than minor since it affected the containment configuration control attribute of the barrier integrity cornerstone. Using Significance Determination Process, Appendix H, and Table 4.1, the finding was characterized as having a very low safety significance because it was

determined to have no impact on core damage frequency or large early release frequency. In addition, the licensee does not credit the containment cooling units for pressure control during a loss-of-coolant accident and only credits one of four containment cooling units in the containment pressure analysis for a main steam line break.
Inspection Report# : 2004003*(pdf)*

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to follow the procedure for transferring fuel in the spent fuel pool
A noncited violation was identified as a result of the failure of the spent fuel handling machine operator to follow the procedure for transferring fuel in the spent fuel pool as required by Technical Specification 5.8.1.a. This failure resulted in the dropping of a fuel assembly in the spent fuel pool. This finding was more than minor since it is associated with the fuel cladding human performance attribute of the cornerstone. The finding was characterized as having very low safety significance because there was no damage to fuel bins or breach of the spent fuel storage pool liner. This finding also had crosscutting aspects associated with human performance
Inspection Report# : 2003006*(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Dec 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to barricade, post, and lock a restricted high radiation area with dose rates greater than 1000 millirems per hour
A noncited violation, with three examples, was identified as a result of the licensee's failure to barricade, conspicuously post, and lock or guard a restricted high radiation areas to prevent unauthorized entry as required by Technical Specifications 5.11.1 and 5.11.2.

Example One. A radiation protection technician walked through a door to Steam Generator Bay B on the 994-foot elevation of the containment building and left the door unguarded and open with the posting not conspicuous. General area dose rates were as high as 1500 millirem per hour in the bay.

Example Two. The ladder leading to the Steam Generator Bay A from the steam generator platform was locked with a sheet metal gate, but the gate was flanked on the side by rails which were approximately 3 feet high. This would have allowed an individual to bypass the gate by simply stepping over the railing. General area dose rates were as high as 4000 millirem per hour in the bay.

Example Three. A permanent ladder leading into the reactor cavity from the south side was controlled by locking the ladder climbing rails at the top of the ladder. An individual could either step around the ladder barrier or go underneath it and enter the reactor cavity. Additionally, on the north side of the cavity, scaffolding was erected to house a set of temporary stairs into the cavity. An individual could bypass the locked door by climbing on the outside of the scaffolding and down into the reactor cavity using a ladder-like structure which was part of the scaffolding. General area dose rates were as high as 5000 millirem per hour in the reactor cavity.

This finding was more than minor because inadequate controls of high radiation areas affect the licensee's ability to ensure adequate protection of worker health and safety from exposure to radiation. Because the finding involved the potential for workers to receive significant unplanned, unintended doses as a result of conditions, the finding was evaluated using the Occupational Radiation Safety Significance Determination Process Appendix C. The finding was characterized as having very low safety significance because a substantial potential for overexposure did not exist. Example One of this finding also had crosscutting aspects associated with human performance.
Inspection Report# : 2003006*(pdf)*

Significance: SL-IV Mar 27, 2003
Identified By: NRC
Item Type: VIO Violation
Failure to follow radiation protection procedural and RWP requirements
Severity Level IV. Several examples of a violation of Technical Specification 5.8.1.a for the failure to follow radiation protection procedure requirements were identified. Fourteen different security officers deliberately violated applicable radiation protection procedural requirements on 62 occasions by not signing in on the required radiation work permit (RWP) 02-004 and not obtaining an electronic alarming dosimeter when assigned to the Alpha 1 security post during the period of April 27 through October 8, 2002. This violation is being treated as a Severity Level IV violation consistent with the NRC Enforcement Policy. This violation is in the licensee's corrective action program as CR-200303574.
Inspection Report# : 2003009*(pdf)*

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Last modified : September 08, 2004