

## Fort Calhoun 4Q/2003 Plant Inspection Findings

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### Initiating Events

**Significance:**  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:**  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\(pdf\)](#)

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### Mitigating Systems

**Significance:**  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:** 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:** 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:** Mar 22, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### Inadequate Procedures for Frazil Ice

Green. The licensee did not have documented instructions that addressed the acts-of-nature condition of frazil ice that can occur during the winter months. Frazil ice buildup on intake structure components may cause a degradation of the ultimate heat sink.

This is a noncited violation of Technical Specification 5.8.1.a and was determined to be a finding of very low safety significance because no actual degradation of the ultimate heat sink occurred.

Inspection Report# : [2003003\(pdf\)](#)



**Significance:** Jan 17, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### Failure to Assure that at Least One Train of Charging Pumps Was Free of Fire Damage

A fire in either of two different fire areas could result in the loss of normal charging, which is credited in the licensee's post-fire safe shutdown analysis for maintaining reactor coolant system inventory.

The team identified a noncited violation of 10 CFR Part 50, Appendix R, Section III.G.2. This finding was of greater than minor significance because it impacted the mitigating systems cornerstone. This resulted from the finding's potential to affect the licensee's capability to maintain reactor coolant system inventory control in response to a fire in either Fire Areas 6 or 36A. This finding was determined to be of very low safety significance, due to the fact that operators would have sufficient time to perform manual actions to restore at least one train of the charging system prior to reactor coolant makeup being required. Because of the low safety significance and the licensee's actions to initiate compensatory measures and place the issue into their corrective action program, this violation is being treated as a noncited violation in accordance with Section VI.A of the Enforcement Policy (50-285/0302-01)

Inspection Report# : [2003002\(pdf\)](#)



**Significance:** 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\(pdf\)](#)

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## Barrier Integrity

**Significance:**  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\(pdf\)](#)

**Significance:**  Dec 12, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Translate Design Basis into Procedures for Instrument Air**

A noncited violation of Criterion III of Appendix B to 10 CFR Part 50 was identified for failure to translate design basis information into plant 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 barrier integrity 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 did not represent an actual open pathway in the reactor containment.

Inspection Report# : [2003011\(pdf\)](#)

**Significance:**  Dec 12, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Use Appropriate Values in Calculations to Verify Over-pressure Protection of Two Containment Penetrations**

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 over-pressurizing 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 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 did not represent an

actual open pathway in the reactor containment.  
Inspection Report# : [2003011\(pdf\)](#)

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:**  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\(pdf\)](#)

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## Public Radiation Safety

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## Physical Protection

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## Miscellaneous

**Significance:** N/A May 08, 2003

Identified By: NRC

Item Type: FIN Finding

### **Biennial Evaluation of Identification and Resolution of Problems Program**

The team concluded that the licensee was effective at identifying problems and putting them into the corrective action program. The licensee's effectiveness at problem identification was evidenced by the relatively few deficiencies identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. However, the team identified vulnerabilities in the licensee's methods for processing 10 CFR Part 21 reports and cross-referencing work orders to condition reports. The licensee effectively used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementing corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. Licensee audits and assessments were found to be effective. On the basis of interviews conducted during this inspection, workers at the site felt free to input safety findings into the problem identification and resolution program.

Inspection Report# : [2003008\(pdf\)](#)

Last modified : March 02, 2004