

# Fort Calhoun

## 4Q/2012 Plant Inspection Findings

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### Initiating Events

**Significance:** G Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Hot Work Procedures Allowed a Roving Fire Watch**

The inspectors identified a Green non-cited violation of Technical Specification 5.8.1.c for the failure to maintain written procedures covering fire protection program implementation. Specifically, the licensee changed the hot work procedure to allow a roving fire watch in lieu of the continuous fire watch required by the fire protection program. The licensee entered this issue into their corrective action program as Condition Report 2012-19945.

The failure to maintain written procedures covering fire protection program implementation was a performance deficiency. This finding was more than minor because it was associated with the procedure quality attribute of the Initiating Events cornerstone and it adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors evaluated the risk significance of this finding using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," because the performance deficiency involved a failure to adequately implement fire prevention and administrative controls for hot work activities. A senior reactor analyst performed a limiting Phase 3 evaluation and determined this finding had very low risk significance (Green). The finding did not have a cross-cutting aspect since it was not indicative of present performance.

Inspection Report# : [2012012](#) (*pdf*)

**Significance:** G Sep 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Untimely Corrective Actions for 480 VAC Breaker Issues**

The NRC identified a noncited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure to take timely corrective actions with respect to nonconforming conditions in several circuit breakers. These conditions were determined to have been the cause of the 1B4A bus bar failure that initiated a fire on June 7, 2011. These conditions were not corrected in a timely manner and the licensee continued to operate with a degraded breaker for nine months after the breaker tripped unexpectedly during the June 7, 2011, fire event. The licensee entered this issue into their corrective action program as CRs 2012-01884 and 2011-5414.

The violation was determined to be more than minor because it affected the Initiating Events Cornerstone attribute of protection against external events (i.e., fire). The issue adversely affected the associated cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations because the condition that contributed to the fire event was left uncorrected. The finding screened to Green in accordance with IMC 0609, Appendix G because RCS makeup capability was not degraded. The inspectors determined that the issue had a cross-cutting aspect in the area of Human Performance, Decision Making, in that the licensee failed to use conservative assumptions and adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action (H.1.b).

Inspection Report# : [2012005](#) (*pdf*)

**Significance:** N/A Aug 18, 2012

Identified By: NRC

Item Type: VIO Violation

#### **Failure to Ensure Breaker Coordination of 480 VAC Electrical Power Distribution System Was Maintained**

The team identified a violation of 10 CFR 50 Appendix B Criteria III, "Design Control." Specifically, the design modification package for the 480 VAC breaker replacements failed to ensure the breaker coordination for the 480 VAC electrical buses was maintained. As a result, feeder breaker 1B3A tripped unexpectedly during the fire event in the 1B4A switchgear. This performance deficiency also resulted in the loss of multiple buses on both trains of 480 VAC, including ECCS systems, from a single fault on a 480 VAC bus. This finding and its corrective actions will be managed by the NRC's Inspection Manual Chapter 0350 Oversight Panel. This finding is associated with Enforcement Action 12-121.

The failure to ensure that the 480 VAC electrical power distribution system design requirements were maintained was a performance deficiency that was within OPPD's ability to foresee and prevent. The performance deficiency was reviewed using NRC Inspection Manual Chapter 0612, Appendix B, "Issue Screening," and the issue was determined to be more than minor because it affected the Initiating Events Cornerstone attributes of protection against external events (i.e., fire) and design control. The issue adversely affected the associated cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge

Inspection Report# : [2012004](#) (*pdf*)

**Significance:** G Jun 07, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **INADEQUATE PROCEDURES WITH FIVE EXAMPLES FOR THE INITIATING EVENTS CORNERSTONE**

The team identified a finding of very low safety significance involving a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," with five examples.

- Example 1: Alarm Response Procedure ARP-CB-10,11/A12 for a main feed water pump trip does not provide guidance that the auxiliary lube oil pump must be started prior to starting the main feed water pump. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03140.
- Example 2: Alarm Response Procedure ARP-CB-1,2,3/A2 provides inadequate instructions for restoration of letdown following a controller or instrument failure that causes letdown isolation. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03140.
- Example 3: Alarm Response Procedure ARP-AI-66A/A66A does not contain guidance to determine if an auxiliary feed water actuation is inadvertent nor does it contain guidance to enter AOP-28, "Auxiliary Feed water System Malfunctions," if the operators determine that the actuation is inadvertent. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03140.
- Example 4: Alarm Response Procedure ARP-CB-1,2,3/A1 does not contain guidance for entering AOP-35, "Reactor Coolant Pump Malfunctions," when there is a seal cooler leak. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03140.
- Example 5: Alarm Response Procedure ARP-CB-1,2,3/A2 does not contain any procedural guidance for a failure of the VCT level instrument. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03140.

These failures to prescribe activities affecting quality by procedures or to include appropriate acceptance criteria are performance deficiencies. Each example is more than minor and therefore a finding because it adversely affects the procedure quality attribute of the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. These examples either could have significantly affected, or were shown during examination preparation and administration to have actually affected the operator's ability to perform the activity affecting quality. In accordance with Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," a phase 1 screening was performed and each example except for Example 1 was determined to be of very low safety significance (Green) because each example does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. For Example 1, a phase 1 screening was

performed and the finding was determined to contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available and required a phase 3 analysis. A senior reactor analyst determined that the finding was of very low safety significance because the calculated bounding delta core damage frequency was  $1.4 \text{ E-}7$ . The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not implement a corrective action program with a low threshold for identifying issues in that licensed operators deviate from procedures when procedures cannot be implemented as written without writing necessary condition reports to fix the deficient procedures.

Inspection Report# : [2012301](#) (*pdf*)

**Significance:** R Apr 13, 2012

Identified By: NRC

Item Type: VIO Violation

**Failure to Ensure that the 480 Vac Electrical Power Distribution System Design Requirements were Implemented and Maintained**

The failure to ensure that the 480 Vac electrical power distribution system design requirements were properly implemented and maintained through proper maintenance, modification, and design activities led to a catastrophic fire in a switchgear impacting the required safe shutdown capability of the plant. Three self-revealing apparent violations were identified with this performance deficiency:

- A violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure to ensure that design changes were subject to design control measures commensurate with those applied to the original design and that measures were established to assure that applicable regulatory requirements and the design basis for those safety-related structures, systems, and components were correctly translated into specifications, drawings, procedures, and instructions;
- A violation of 10 CFR Part 50, Appendix B, Criterion XVI “Corrective Action,” for the failure to establish measures to assure that a significant condition adverse to quality was promptly identified and corrected, and measures taken to preclude repetition;
- A violation of License Condition 3.D, “Fire Protection Program,” for the failure to ensure that the electrical protection and physical design of the 480 Vac electrical power distribution system provided the electrical bus separation required by the fire protection program.

Specifically: (1) design reviews and work planning for a modification to install twelve new 480 Vac load center breakers failed to ensure that the cradle adapter assemblies had a low-resistance connection with the switchgear bus bars by establishing a proper fit and requiring low resistance connections; (2) preventive maintenance activities were inadequate to ensure proper cleaning of conductors, proper torquing of bolted conductor and bus bar connections, or adequate inspection for abnormal connection temperatures; and (3) design reviews of the electrical protection and train separation of the 480 Vac electrical power distribution system were inadequate to ensure that a fire in load center 1B4A would not adversely impact operation of redundant safe shutdown equipment in load center 1B3A, as required by the fire protection program. The licensee entered these issues into their corrective action program under numerous condition report numbers, which are described in the body of this report.

The performance deficiency was determined to be more than minor because it affected the Initiating Events Cornerstone and was associated with both the protection against external events attribute (i.e., fire) and the design control attribute. The finding affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” Table 4a, directed the process to a Phase 3 analysis because the finding increased the likelihood of an external event (fire), and impacted mitigating systems needed to respond to that initiating event. A Phase 3 analysis was completed using the plant-specific Standardized Plant Analysis Risk Model for Fort Calhoun, Revision 8.15, the Individual Plant Evaluation of External Events (IPEEE), and hand calculations. The analysis covered the risk affected by the performance deficiency for postulated fires of any of the remaining nine continuously energized breakers including the potential for multiple fire initiators.

Additionally, seismically-induced fires were postulated based on the characteristics of the performance deficiency. Based in the best available information the performance deficiency was preliminarily characterized as a finding of high safety significance (Red). This performance deficiency had a crosscutting aspect in the area of human performance associated with the resources component because the licensee did not ensure that personnel, equipment, procedures, and other resources were adequate to assure nuclear safety. Specifically, the licensee did not ensure that design documentation, procedures, and work packages were adequate to assure that design margins were maintained. [H.2(c)]

Inspection Report# : [2012010](#) (*pdf*)

**Significance:** G Feb 02, 2012

Identified By: NRC

Item Type: VIO Violation

### **Inadequate Corrective Actions to Ensure Reliability of Raw Water Pump Power Cables**

The NRC identified a cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to take effective corrective action following the initial discovery of water intrusion in cable vault manholes MH-5 and MH-31 in 1998, 2005, 2009, and 2011. Specifically, the licensee failed to take effective corrective action to establish an appropriate monitoring frequency, which took into account variable environmental conditions to mitigate potential common mode failure of raw water 4160 V motor cables in underground ducts and manholes identified during the Component Design Basis Inspection performed in 2009. The violation is being cited because the licensee had failed to restore compliance in a reasonable period following documentation of the issue as a non-cited violation issued December 30, 2009.

The failure to take effective corrective action to ensure the reliability and capability of the safety-related cables powering the raw water pump motors was a performance deficiency. Furthermore, the finding was within the licensee's ability to foresee and correct because the licensee had multiple opportunities to correct the continuing challenge to the safety-related cables and raceways for the raw water system over an extended period. The finding was more than minor because it adversely affected the Mitigating Systems Cornerstone attribute of design control for ensuring the availability, reliability, and capability of systems that respond to Initiating Events to prevent undesirable consequences. The finding is of very low safety significance because it was a design deficiency that did not result in loss of operability or functionality.

This finding has a crosscutting aspect in the decision-making program component of the human performance area because the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it was unsafe in order to disapprove the action. Specifically, from 2005 until 2011, the licensee chose to postpone installation of proposed water level control corrective actions and failed to appropriately monitor water intrusion into underground ducts and manholes MH-5 and MH-31 for raw water 4160 V motor cables multiple times.

Inspection Report# : [2011006](#) (*pdf*)

**Significance:** G Feb 02, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Follow Housekeeping Program Requirements**

The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to properly implement procedural requirements to control transient equipment and materials. Specifically, on November 14, 2011, the team identified loose maintenance carts, improperly stored ladders, excessive transient combustible material, inadequately evaluated scaffolding being stored near safety-related equipment, and a procedure which failed to provide guidance for inspection and removal of foreign material in the spent fuel pool as a result of a non-functional skimmer.

The repeated failures of plant personnel to follow the procedural requirements for the control of transient materials were performance deficiencies. The finding was more than minor because if left uncorrected, the deficiencies could lead to a more significant safety concern. The finding is of very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the corrective action program component of the problem identification and resolution area because the licensee failed to track and trend information from the corrective action program (recurring transient equipment issues) in the aggregate to identify programmatic and common cause problems.  
Inspection Report# : [2011006](#) (*pdf*)

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## Mitigating Systems

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Obtain a License Amendment as Required by 10 CFR 50.59**

The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.59 involving the failure to obtain a license amendment prior to implementing a change to the facility that constituted a more than minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component important to safety than previously evaluated in the final safety analysis report. The licensee changed their flood procedure and Updated Safety Analysis Report such that non-safety related equipment was substituted for safety-related equipment in their flooding mitigation measures. The licensee entered this condition into their corrective action program and planned a modification which would remove use of the non-safety related equipment.

The team determined that the failure to obtain a license amendment prior to implementing a proposed change, test or experiment to the flooding mitigation strategy was a performance deficiency. The performance deficiency was evaluated as both a traditional enforcement violation because the finding has the ability to impact the regulatory process, and a reactor oversight process finding. The violation of 10 CFR 50.59 was more than minor because it involved a change to the updated final safety analysis report description where there was a reasonable likelihood that the change would require NRC approval. In accordance with the NRC Enforcement Policy, the team used insights from MC 0609, "Significance Determination Process," to determine the final significance of the finding for an improper evaluation for a change to the plant. The finding represented a potential loss of the intake structure due to flooding, therefore, a Phase 3 evaluation by a senior reactor analyst was necessary. The senior reactor analyst evaluated a bounding risk analysis case which assumed that the raw water system and offsite power were lost. This bounding case had an incremental conditional core damage probability of  $5.0 \times 10^{-7}$ , and therefore the finding was determined to have very low safety significance (Green). Therefore, since the finding had very low safety significance, the traditional enforcement violation was determined to be Severity Level IV, in accordance with the NRC Enforcement Policy. The inspectors determined the Green finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate problems such that resolutions address the causes and extent of condition specifically associated with deficiencies involving the "Acts of Nature" procedural guidance [P.1(c)].

Inspection Report# : [2012012](#) (*pdf*)

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: FIN Finding

### **Failure to Manage Functionality of the River Sluice Gates**

The team identified a finding for the failure to manage the functionality of the river sluice gates. Specifically, the licensee's preventive maintenance program requirements were not appropriately implemented for a period of 12 months and as a result, the functionality of the river sluice gates was improperly maintained.

The team concluded that the failure to manage the functionality of the sluice gates was a performance deficiency that warranted further evaluation. Specifically, the licensee's preventive maintenance program requirements were not appropriately implemented for a period of 12 months and as a result, the functionality of the sluice gates was improperly maintained. The examples supporting this performance deficiency are as follows:

1) Failure to perform preventive maintenance and monthly testing on the river sluice gates for four months

- 2) Failure to perform monthly testing on two sluice gates on September 2012
- 3) Failure to perform monthly testing on all the sluice gates on October 2012
- 4) Failure to properly identify and timely enter conditions adverse to quality into the Corrective Action Program
- 5) Failure to demonstrate effective control of performance of the river sluice gates and to place the system in a monitoring program
- 6) Failure to make appropriate functionality assessment when the river sluice gates failed the monthly testing during August 2012

The licensee entered these issues into their corrective action program under numerous condition reports described in the body of this report.

Using the guidance in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," the inspectors determined this finding affected the Mitigating Systems cornerstone. The finding is greater than minor because it is associated with both of the Mitigating Systems Cornerstone attributes of Equipment Performance and Protection Against External Factors and, it adversely affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," and conducted a Phase 1 characterization and initial screening. Using Phase 1 Table 3, "SDP Appendix Router," the inspectors answered 'yes' to the following question: "Does the finding pertain to operations, and event, or a degraded condition while the plant was shut down?" As a result, the inspectors were directed to use IMC 0609 Appendix G, "Shutdown Operations Significance Determination Process." Using Appendix G the inspectors determined that the finding did need a quantitative assessment because the finding degrades the licensee's ability to recover decay heat removal once it is lost. As a result, the finding was forwarded to a Senior Reactor Analyst for further quantitative analysis.

The finding represented a potential loss of the intake structure due to flooding, therefore, a Phase 3 evaluation by a senior reactor analyst was necessary. The senior reactor analyst evaluated a bounding risk analysis case which assumed that the raw water system and offsite power were lost. This bounding case had an incremental conditional core damage probability of  $5.0 \times 10^{-7}$ , and therefore the finding was determined to have very low safety significance (Green). The inspectors determined the Green finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee did not take appropriate corrective action to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity [P.1(d)].

Inspection Report# : [2012012](#) (pdf)

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Adequately Implement the Maintenance Rule Program**

The team identified a Green noncited violation of 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants" which states, in part, that "the licensee shall monitor the performance or condition of structures, systems, or components, against licensee-established goals, in a manner sufficient to provide reasonable assurance that these structures, systems, and components are capable of fulfilling their intended functions. These goals shall be established commensurate with safety and, where practical, take into account industry-wide operating experience." Specifically, from March of 2012 until October of 2012, the licensee allowed the maintenance rule program to deteriorate by not performing initial screenings in a timely fashion (some were being done months later) and the actual evaluation of the equipment status was not being done at all for eight months. Consequently, several components including electrical relays and electrical load centers were not characterized in a timely fashion.

Also, the licensee was not implementing the operating experience program as required by this regulation. The licensee chose to stop performance of level 1 and level 2 operating experience evaluations by direction from the senior management in August of 2012 because of concerns over resources for recovery. Several examples where operating experience was not done correctly that subsequently led to equipment issues included the containment spray pump low oil issues (ACA 2008-5695), vendor manual updates, and loose fasteners (both electrical and mechanical) from San Onofre Nuclear Generating Station Licensee Event Reports 3612007005, 3612007006, and 3612008006. This finding was entered into the licensee's corrective action program as Condition Report CR 2012-17572.

The team determined that the failure to adequately implement the maintenance rule was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected it could lead to

a more serious concern. Using Manual Chapter 0609, Attachment 4, Significance Determination Process router on Table 3, it sends the user to Appendix G for “Shutdown Operations Significance Determination Process.” Using Checklist 4 of Appendix G for the given plant conditions, the finding was determined to have very low safety significance (Green) because the finding did not 1) increase the likelihood of a loss of RCS inventory, or 2) degrade the licensee’s ability to terminate a leak path or add reactor coolant system inventory when needed, or 3) degrade the licensee’s ability to recover decay heat removal once it is lost. This finding was determined to have a cross-cutting aspect in the area of human performance associated with the decision-making component because the licensee did not use conservative assumptions in decision making and did not identify the possible unintended consequences of removing personnel from a job without a replacement and the corresponding impact on those programs, and determine how to improve future decisions [H.1(b)]

Inspection Report# : [2012012](#) (*pdf*)

**Significance:**  Nov 17, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Ensure that Adequate Equipment was Available to Measure River Level Locally to be Able to Comply with an Abnormal Operating Procedure**

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to ensure that adequate equipment was available to measure river level locally to comply with an abnormal operating procedure. Specifically, the length of the weighted tape measure used to measure river level locally was inadequate to ensure that the entire range of river levels needed for operation of the plant would be covered. The licensee entered the issue into its corrective action program for evaluation and review.

The performance deficiency was determined to be more than minor because it is associated with the Mitigating Systems Cornerstone attribute of Equipment Performance and it adversely affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was screened as very low safety significance (Green) because the licensee maintained an adequate mitigation capability and it would not be characterized as a loss of control. The inspectors determined the finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate problems such that resolutions address the causes and extent of condition specifically associated with deficiencies involving the “Acts of Nature” procedural guidance

Inspection Report# : [2012011](#) (*pdf*)

**Significance:**  Nov 17, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Design Basis Documentation**

The NRC identified a non-cited violation of 10 CFR 50 Appendix B, Criterion V, “Procedures,” for failing to follow a quality procedure. Specifically; PED-QP-13 “Design Basis Document Control,” requires FCS to update and maintain their Design Bases Documents. The license has failed to maintain these design documents. Some examples include PLDBD-51 “Seismic Criteria” where the configuration of the Steam Generator supports were not accurately described, and PLDBD-ME-10 “Pipe Stress and Supports” where the piping design code classification for Main Steam is incorrect. The licensee entered the issue into its corrective action program for evaluation and review.

The performance deficiency is more than minor because if left uncorrected it would have the potential to lead to a more significant safety concern. The finding was determined to affect the Initiating Events, Mitigation Systems, and Barrier Cornerstones using Inspection Manual Chapter 0609.04, “Initial Characterization of Findings.” The finding was characterized as having very low safety significance (i.e., Green) using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) For Findings At-Power,” because all logic questions for the applicable cornerstones were answered in the negative. The finding is assigned a cross-cutting aspect in the area of Human Performance, in the component of Resources because the licensee failed to ensure that personnel, equipment, procedures, and other resources, specifically those necessary for complete, accurate and up-to-date design documentation, were available and adequate to assure nuclear safety. H.2(c)

Inspection Report# : [2012011](#) (*pdf*)

**Significance:**  Nov 17, 2012

Identified By: NRC

Item Type: FIN Finding

**Failure to Properly Scope All the Pertinent External Flood Protection Features into the Walkdown List in Accordance with Industry Guidance NEI 12-07**

The inspectors identified a finding of very low safety significance (Green) for the licensee's failure to generate a complete inspection list, with all the external flood protection features credited in the current licensing basis documents for flooding events, to comply with NRC endorsed NEI 12-07, "Guidelines for Performing Walkdowns of Plant Flood Protection Features." These walkdowns were being performed in response to a March 12, 2012, letter from the NRC to licensees, entitled, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident." Specifically, the scoping list did not include several active components, which are an essential part of Fort Calhoun's design basis flood mitigation strategy. The licensee entered the issue into the corrective action program and revised the scoping list accordingly.

The performance deficiency was determined to be more than minor because it is associated with the Mitigating Systems Cornerstone attribute of Protection Against External Factors (Flood Hazard) and it adversely affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, in addition to not scoping the sluice gates into the Flooding Features Walkdown List, fourteen additional active components would not have been scoped into the walkdown list. This would have prevented the licensee from identifying that preventive maintenance tasks needed to be created, and some active components that are an essential part of the flood mitigating strategy would not have been inspected and tested. The finding was screened as very low safety significance (Green) because the finding did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. The inspectors determined the finding had a cross-cutting aspect in the area of human performance because licensee personnel did not properly apply human error prevention techniques such as peer checking and proper documentation of activities (H.4(a))

Inspection Report# : [2012011](#) (*pdf*)**Significance:**  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Ensure Personnel Meet Minimum Educational Requirements**

The inspectors identified a noncited violation of Technical Specification 5.3.1, "Facility Staff Qualifications," for failure to ensure electrical group supervisors met the minimum qualification requirements specified in American National Standards Institute N18.1-1971, "American National Standard Selection and Training of Nuclear Power Plant Personnel." Fort Calhoun Station entered this performance deficiency into their corrective action program as CR 2012-04543.

The failure to ensure that electrical supervisors met minimum standards required by technical specifications for activities affecting quality is a performance deficiency. It is more than minor and is therefore a finding because it adversely affects the human performance attribute of the Mitigating Systems Cornerstone and affects the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," a Phase 1 screening was performed and it was determined that this example was of very low safety significance (Green) because: (1) is not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of work practices because the licensee failed to ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported.

Inspection Report# : [2012003](#) (*pdf*)**Significance:**  Jun 07, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

## **INADEQUATE PROCEDURES WITH SEVEN EXAMPLES FOR MITIGATING SYSTEMS CORNERSTONE**

The team identified a finding of very low safety significance involving a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," with seven examples.

- Example 1: There is no procedure guidance provided for tripping bistables on a trip unit if required for any instrument failure other than nuclear instrumentation. The annunciator response procedures only provide guidance to bypass the trip unit. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03140.
- Example 2: Abnormal Operating Procedure AOP-15, "Loss of Flux Indication or Flow Streaming" does not provide guidance during a nuclear instrument failure for tripping only those trip units that need to be tripped and bypassing the others. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03141.
- Example 3: Procedure SO-O-1, "Conduct of Operations," and Procedure OPD-04-09, "Emergency Operating Procedure / Abnormal Operating Procedure Use and Adherence Procedure" each direct the operator to the other procedure for a discussion on the concept of procedure use and adherence in emergency operations procedure usage without addressing procedure use and adherence. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03143.
- Example 4: There is no procedural guidance in OP-2A, "Plant Startup," on how to plot the 1/M data against reactivity and control element assembly position nor on how to determine the Estimated Critical Position – 1% ??. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03138.
- Example 5: Operating Instruction OI-SI-1, "Safety Injection – Normal Operation," Attachment 4, "Filling SI Tank(s) Using HPSI Pumps," does not contain sufficient guidance for operators to successfully fill the safety injection tank using high pressure safety injection pumps. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03139.
- Example 6: The licensee failed to include directions in Alarm Response Procedure ARP-CB-10,11/A12, to set the 43FW switch to OFF prior to attempting a manual start of the standby condensate pump when the auto-start feature fails to start the standby pump. This switch must be placed in OFF before the standby condensate pump can be started. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03140.
- Example 7: The licensee failed to include direction to start an auxiliary lube oil pump prior to attempting to start the main feedwater pump in Abnormal Operating Procedure AOP-28, "Auxiliary Feedwater Malfunctions." After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03973.

These failures to prescribe activities affecting quality by procedures or to include appropriate acceptance criteria are performance deficiencies. Each example is more than minor and is therefore a finding because it adversely affects the procedure quality attribute of the mitigating systems cornerstone and affects the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. These examples either could have significantly affected, or were shown during examination preparation and performance to have actually affected the operator's ability to perform the activity affecting quality. In accordance with Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," a Phase 1 screening was performed and determined that each example was of very low safety significance (Green) because each example: (1) is not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. These findings have a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not implement a corrective action

program with a low threshold for identifying issues in that licensed operators deviate from procedures when procedures cannot be implemented as written without writing necessary condition reports to fix the deficient procedures.

Inspection Report# : [2012301](#) (*pdf*)

**Significance:**  Jun 07, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO COMPLY WITH TECHNICAL SPECIFICATIONS 2.3(1)(i) FOR SAFETY INJECTION TANK OPERABILITY**

The team identified a non-cited violation for failing to comply with Technical Specification 2.3(1)(i) in that multiple Safety Injection Tanks were connected together simultaneously for filling operations on at least two occasions, once while sluicing on 01/18/2010 and once where all four tanks were connected together on 03/31/2011. This Limiting Condition for Operation requires that all valves, piping and interlocks associated with the Safety Injection Tanks (that are required to function during accident conditions) are operable to maintain Safety Injection Tank operability. Operability of these fill valves is met when each valve is shut. With multiple fill valves open during normal operations, this technical specification is not met, and there is no remedial action described when more than one Safety Injection Tank is inoperable with the reactor critical, requiring a unit shutdown in accordance with Technical Specification 2.0.1. This action was not performed by the licensee. After identification, the licensee entered this issue into the corrective action program as Condition Reports 2012-01956 and 2012-04815.

Failure to comply with technical specifications was a performance deficiency. The performance deficiency is more than minor and therefore a finding because it adversely impacted the equipment performance attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Significance Determination Process Phase 1 and 2 Worksheets, the finding was determined to affect the loss of system safety function and required entry into Appendix A of this process for screening. The senior reactor analyst screened the issue based on a less than one-hour exposure time and determined that the finding was of very low safety significance (Green) because the calculated bounding delta core damage frequency was 1 E-8. The finding has a cross-cutting aspect in the area of work control because the licensee failed to plan work activities to support long-term equipment reliability by not limiting safety system unavailability, specifically the Safety Injection Tanks.

Inspection Report# : [2012301](#) (*pdf*)

**Significance:** N/A May 17, 2012

Identified By: NRC

Item Type: VIO Violation

**Failure to Provide Adequate Post-Fire Safe Shutdown Actions in the Switchgear Rooms**

The inspectors identified a violation of Technical Specification 5.8.1.c for an inadequate fire protection procedure. Specifically, the post fire safe shutdown procedure had several deficiencies that would have prevented implementation for fires that occurred in the East and West Switchgear Rooms. This finding, and its corrective actions, will be managed by the Manual Chapter 0350 Oversight Panel. Enforcement Action 12 121 is associated with this finding.

The failure to ensure a post-fire safe shutdown procedure could be implemented as written for fires in the East and West Switchgear Rooms was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding is bounded by the significance of a related Red finding regarding a fire in the 480 Vac safety-related switchgear in June 2011 (Inspection Report 05000285/2012010). The performance deficiency had a cross-cutting aspect in the area of human performance associated with decision making because the licensee did not perform effective interdisciplinary reviews during development of the post-fire safe shutdown procedure.

Inspection Report# : [2012007](#) (*pdf*)

**Significance:** N/A May 17, 2012

Identified By: NRC

Item Type: VIO Violation

**Failure to Maintain Command and Control Function During Fire Fighting Activities in the Protected Area**

The inspectors identified a violation of Technical Specification 5.8.1.c regarding a failure to adequately implement the fire protection program. Specifically, the fire brigade failed to maintain command and control of the response to a fire event inside the protected area as required by fire protection program procedures. This finding, and its corrective actions, will be managed by the Manual Chapter 0350 Oversight Panel. Enforcement Action 12-121 is associated with this finding.

The failure by station fire brigade personnel to implement the requirements of Procedure SO-G-28, Revision 81, in response to a fire at Fort Calhoun Station inside the licensee's protected area which required fire brigade response was a performance deficiency. The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of protection against external events (fire) and it affected the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding is bounded by the significance of a related Red finding regarding a fire in the 480 Vac safety-related switchgear in June 2011 (Inspection Report 05000285/2012010). This finding has a cross-cutting aspect in the area of human performance associated with decision making because the licensee failed to implement the fire brigade roles and authorities as designed for risk-significant decisions.

Inspection Report# : [2012007](#) (pdf)

**Significance:**  May 17, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**ALTERNATE SHUTDOWN PROCEDURE DOES NOT ACCOUNT FOR SINGLE WORST CAST SPURIOUS ACTUATIONS**

The inspectors identified a non-cited violation with two examples related to the failure to establish an alternate shutdown capability that met the requirements of License Condition 3.D and the performance criteria in 10 CFR Part 50, Appendix R, Section III.L. Specifically, the licensee failed to establish an alternate shutdown capability that accounted for the effects of an inadvertent safety injection actuation signal and failed to ensure the plant parameters remained similar to those experienced during a loss of normal a.c. power following single spurious component actuations.

The failure to meet the performance goals prescribed by the alternate shutdown capability was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated this deficiency using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The performance deficiency affected the fire protection defense-in depth strategies involving post-fire safe shutdown systems. Because Appendix F does not address control room fire scenarios, a senior reactor analyst evaluated the significance of this performance deficiency.

This finding was evaluated using the process in Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and was determined to be of very low safety significance because the finding was not a design deficiency, confirmed not to result in loss of functionality, did not result in loss of a system safety function, did not result in loss of the safety function for a single train, did not result in loss of safety function for maintenance rule equipment, and did not potentially affect risk significant external initiating events. Because the original failure to comply with the regulations had occurred longer than three years prior to this inspection, this finding did not reflect current licensee performance.

Inspection Report# : [2012007](#) (pdf)

**Significance:**  May 17, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO PROVIDE ADEQUATE ALTERNATE SHUTDOWN CAPABILITY**

The inspectors identified a non-cited violation of Technical Specification 5.8.1.c for an inadequate fire protection procedure. Specifically, the post fire safe shutdown procedure had several deficiencies that would have prevented implementation of the alternate shutdown capability for fires in the control/cable spreading rooms.

The failure to establish a procedure that could be implemented as written for fires that require operators to abandon the control room was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated this deficiency using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The performance deficiency affected the fire protection defense-in depth strategies involving post-fire safe shutdown systems. Because Appendix F does not address control room fire scenarios, a senior reactor analyst evaluated the significance of this performance deficiency.

This finding was evaluated using the process in Inspection Manual Chapter 0609, Attachment 4, and was determined to be of very low safety significance because the finding was not a design deficiency, confirmed not to result in loss of functionality, did not result in loss of a system safety function, did not result in loss of the safety function for a single train, did not result in loss of safety function for maintenance rule equipment, and did not potentially affect risk significant external initiating events. This finding had a cross-cutting aspect in the area of human performance associated with decision making because the licensee did not perform effective interdisciplinary reviews during development of the post-fire safe shutdown procedures.

Inspection Report# : [2012007](#) (pdf)

**Significance:**  May 17, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**UNTIMELY CORRECTIVE ACTIONS RELATED TO REVISING A POST-FIRE SAFE SHUTDOWN PROCEDURE**

The inspectors identified a non-cited violation of License Condition 3.D and the Quality Assurance Plan for failure to take timely corrective action. Specifically, the licensee revised procedure steps to open the breakers for the reactor coolant gas vent system valves in response to Non-cited Violation 05000285/2008009 02; however, the licensee did not revise the procedures until March 24, 2012, after the inspectors requested to review the corrective actions for the 2008 violation.

The failure to take timely corrective action to address inadequate procedure guidance to safely shutdown the plant following a fire was a performance deficiency. The finding was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using the Fire Protection Significance Determination Process and was determined to be of very low safety significance because of the design of the vent system valves (i.e., three spurious actuations needed to exceed charging pump capability), availability of reliable reactor coolant system pressure and pressurize level indications in the control room, and the ability of the operator to compensate for the deficiency because of their experience and familiarity. This finding had a cross-cutting aspect in the area of human performance associated with decision making because the licensee did not use a systematic process to correct fire protection procedure deficiencies in response to a violation in 2008.

Inspection Report# : [2012007](#) (pdf)

**Significance:** N/A Mar 31, 2012

Identified By: NRC

Item Type: VIO Violation

**Inadequate Procedures to Mitigate a Design Basis Flood Event**

The inspectors identified four examples of a violation of Technical Specification 5.8.1.a, "Procedures," for failure to establish and maintain procedures to mitigate an external flooding event. The procedural guidance for flooding was inadequate to mitigate the consequences of external flooding. This finding, and its corrective actions, will be managed by the Manual Chapter 0350 Oversight Panel.

This finding was more than minor because it adversely impacted the procedure quality, human performance and protection against external events attributes of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding is bounded by the significance of a related Yellow finding regarding the ability to mitigate an external flooding event (Inspection Report 05000285/2010008). This finding has a crosscutting aspect in the area of problem identification and resolution, corrective action program, for failure to thoroughly evaluate problems such that the resolutions address causes and extent of conditions. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved.

Inspection Report# : [2012002](#) (*pdf*)

**Significance:** N/A Mar 31, 2012

Identified By: NRC

Item Type: VIO Violation

**Failure to Classify Intake Structure Sluice Gates as Safety Class III**

The inspectors identified a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for failure of the licensee to classify the six intake structure exterior sluice gates and their motor operators as Safety Class III. This finding, and its corrective actions, will be managed by the Manual Chapter 0350 Oversight Panel.

This finding was more than minor because it adversely impacted the protection against external events attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding is bounded by the significance of a related Yellow finding regarding the ability to mitigate an external flooding event (Inspection Report 05000285/2010008). This finding has a crosscutting aspect in the area of problem identification and resolution, corrective action program, for failure to thoroughly evaluate problems such that the resolutions address causes and extent of conditions. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved.

Inspection Report# : [2012002](#) (*pdf*)

**Significance:** N/A Mar 31, 2012

Identified By: NRC

Item Type: VIO Violation

**Failure to Meet Design Basis Requirements for Design Basis Flood Event**

The inspectors identified a violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for failure to meet design basis requirements for protection of the safety related raw water system during a design basis flood for flood levels between 1,010-1,014 feet mean sea level as identified in Updated Safety Analysis Report, Section 9.8, "Raw Water System." Specifically, the design basis states that water level inside the intake cells can be controlled during a design basis flood by positioning the exterior sluice gates to restrict the inflow into the cells. This finding, and its corrective actions, will be managed by the Manual Chapter 0350 Oversight Panel.

This finding was more than minor because it adversely impacted the equipment performance and protection against external events attributes of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding is bounded by the significance of a related Yellow finding regarding the ability to mitigate an external flooding event (Inspection Report 05000285/2010008). This finding has a crosscutting aspect in the area of problem identification and resolution, corrective action program, for failure to thoroughly evaluate problems such that the resolutions address causes and extent of conditions.

Inspection Report# : [2012002](#) (*pdf*)

**Significance:**  Feb 02, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Promptly Correct Degraded Electrical Insulation on the Component Cooling Water System Motors Cables**

The NRC identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly correct conditions adverse to quality. Specifically, the licensee failed to correct degraded conditions associated with the electrical supply cable insulation for the component cooling water motors originally identified in 2003. In addition, the licensee did not have justification for the temporary repairs made to the cables nor for continued operability.

The failure of the licensee to promptly correct conditions adverse to quality associated with the loss of full qualification of plant components due to degraded electrical supply cable insulation was a performance deficiency. This performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding has very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the resources component of the human performance area because the licensee failed to minimize long-standing equipment issues by correcting these deficiencies

Inspection Report# : [2011006](#) (*pdf*)

**Significance:**  Feb 02, 2012

Identified By: NRC

Item Type: FIN Finding

**Failure to Perform Extent of Condition Evaluation**

The NRC identified a finding for failure of the licensee to follow directions of an apparent cause evaluation to perform an extent of condition evaluation. Specifically, following the identification of an inadequate temporary design modification that rendered annunciator CB 20, Panel A18, Window C3 inoperable on July 5, 2011, engineering personnel failed to perform an extent of condition evaluation to identify other annunciator windows rendered inoperable by the design modification.

The failure of engineering personnel to perform an extent of condition evaluation as directed by the apparent cause evaluation for a temporary modification following identification of an unexpected condition was a performance deficiency. The finding is more than minor because the failure to adequately implement the corrective actions associated with the temporary modification's identified deficiencies affects the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The finding has a crosscutting aspect in the corrective action program component of the human performance area associated with work practices because engineering personnel failed to follow direction and ensure that an extent of condition review mandated by an apparent cause evaluation was performed.

Inspection Report# : [2011006](#) (*pdf*)

**Significance:**  Feb 02, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish Adequate Measures to Maintain Vendor Manual Design Control Information**

The NRC identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the

failure to establish adequate measures for the selection and review for suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and components. Specifically, the team identified numerous condition reports involving inadequate implementation of vendor manual information that affected the suitability of application of parts equipment, and processes that are essential to the safety-related function of structures, systems, and component repair and refurbishment activities over an extended period.

The failure to properly maintain design information associated with vendor manuals to ensure information, which affected the suitability of application of parts equipment, and processes, essential to the safety-related function of structures, systems, and component repair and refurbishment activities, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and was therefore a finding. The finding has very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the decision making component of the human performance area because the licensee failed to make safety-significant decision using a systemic process which included formally defining the authority and roles for decisions in that the licensee chose not to fill key positions responsible for the program for several years.

Inspection Report# : [2011006](#) (*pdf*)

**Significance:**  Feb 02, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Implement an Adequate Trending Program**

The NRC identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for inadequate procedures that are used to implement the licensee trending program. Specifically, on December 1, 2011, the team identified a deficiency regarding the licensee’s inability to implement adequate procedures for gathering, analyzing, and communicating information related to low-level performance vulnerabilities and repeat occurrences prior to the emergence of more significant events.

The failure to implement adequate procedures to trend conditions adverse to quality is a performance deficiency. The finding affected the Mitigating Systems Cornerstone and was more than minor because if left uncorrected, the deficiency could lead to a more significant safety concern. The finding has very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a crosscutting aspect in the corrective action program component of the problem identification and resolution area because the licensee failed to thoroughly evaluate problems associated with the trending program such that the resolutions address causes and extent of conditions, as necessary.

Inspection Report# : [2011006](#) (*pdf*)

**Significance:** **W** Apr 15, 2011

Identified By: NRC

Item Type: VIO Violation

#### **Failure to Correct a Degraded Contactor in the Reactor Protective System**

During an NRC inspection conducted from January 17 through April 15, 2011, one violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion XVI, “Corrective Action,” requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the

cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, between November 3, 2008, and June 14, 2010, the licensee failed to assure that the cause of a significant condition adverse to quality was determined and corrective actions were taken to preclude repetition.

Specifically, the licensee failed to preclude shading coils from repetitively becoming loose material in the M2 reactor trip contactor. The licensee failed to identify that the loose parts in the trip contactor represented a potential failure of the contactor if they became an obstruction; and therefore, failed to preclude repetition of this significant condition adverse to quality, that subsequently resulted in the contactor failing.

This violation is associated with a White significance determination process finding in the Mitigating Systems Cornerstone.

Inspection Report# : [2011007](#) (pdf)

**Significance:** Y Jun 21, 2010

Identified By: NRC

Item Type: VIO Violation

### **Failure to Maintain External Flood Procedures**

Yellow. The inspectors identified an apparent violation of Technical Specification 5.8.1.a, "Procedures," for failure to establish and maintain procedures that protect the intake structure and auxiliary building during external flooding events. The inspectors determined that the procedural guidance of GM-RR-AE-1002, "Flood Control Preparedness for Sandbagging," was inadequate because stacking and draping sandbags at a height of four feet over the top of floodgates would be insufficient to protect the vital facilities to 1014 feet mean sea level, as described in Updated Safety Analysis Report and station procedures. The licensee has entered this condition into their corrective action program as Condition Report 2010-2387. As result of this violation, the licensee has implemented a corrective action plan to correct identified deficiencies and ensure site readiness.

This performance deficiency is more than minor because it adversely affected the Mitigating Systems Cornerstone attribute of external events and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the finding resulted in the degradation of equipment and functions specifically designed to mitigate a flooding initiating event. In addition, an external flood event would degrade two or more trains of a multi-train safety system. Therefore, the finding was potentially risk significant to flood initiators and a Phase 3 analysis was required. The preliminary change in core damage frequency was calculated to be  $3.1E-5$ /year indicating that the finding was of substantial safety significance (Yellow). The finding was determined to have a crosscutting aspect in the area of problem identification and resolution, corrective action program, for failure to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, from 2003 to 2008, the licensee failed to initiate appropriate corrective actions to ensure regulatory compliance of the external flooding design basis was maintained. [P.1(d)] (Section 4OA5.1)

ERRATA - 10/19/10 issued IR 05000285/2010008-01 to document final significance determination process letter.

Inspection Report# : [2010007](#) (pdf)

Inspection Report# : [2010008](#) (pdf)

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## **Barrier Integrity**

**Significance:** G Nov 17, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Operability Determination for Containment Internal Structures**

The NRC identified a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion V, "Procedures," for the failure to perform an adequate operability determination as required by FCS Procedure NOD-QP-31, "Operability Determination Process." Specifically, the licensee's operability determination for non-conforming containment internal structures failed to address that a section of the containment internal structures exceeded the allowable working stress criteria. The licensee entered this issue into its corrective action program for evaluation and review.

Inspectors found that the failure to perform an adequate operability determination to specifically evaluate that the containment internal structures did not meet the design code of record was a performance deficiency. This violation is more than minor because it is associated with the design control attribute of the barrier integrity cornerstone and has the potential to adversely affect the cornerstone objective. The inspectors used Inspection Manual Chapter 0609, Appendix G "Shutdown Operations Significance Determination Process", to determine that the issue screened as very low safety significance (green) because it did not require a quantitative assessment per Checklist 4. This violation was determined to have a crosscutting aspect in the area of human performance associated with decision making [H.1.b]. Specifically, the licensee did not use conservative assumptions in decision making and did not adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action

Inspection Report# : [2012011](#) (*pdf*)

**Significance:**  Aug 18, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Fuel Move with SFP Ventilation Inoperable a Condition Prohibited by Technical Specification 2.8.3(4)**

The inspectors identified a non-cited violation of very low safety significance of Technical Specification 2.8.3(4), the limiting condition for refueling operations in the spent fuel pool. In December 2009, the licensee performed refueling operations with the Spent Fuel Pool Area Charcoal Filtration System, VA-66, declared inoperable. The failure to establish an operable Spent Fuel Pool Area Charcoal Filtration System, VA-66, before moving spent fuel was a performance deficiency and a violation of Technical Specification 2.8.3(4). The licensee entered this issue into the corrective action program as Condition Reports 2012-08521, 2012-0836 and Licensee Event Report 2012-008-0.

The performance deficiency was determined to be more than minor because it adversely impacted the attribute of the Barrier Integrity Cornerstone objective to maintain radiological filtration functionality during operations in the spent fuel pool to protect the public from radionuclide releases caused by accidents or events. Using IMC 0609 Appendix A, "Barrier Integrity Significance Determination Process," the inspectors determined this finding to be of very low safety significance (Green). Although fuel movements were contrary to the licensee's technical specifications limiting condition for refueling operations, the finding represented a degradation of the radiological barrier function provided for the spent fuel pool fuel building. This finding has a cross-cutting aspect in the area of problem identification and resolution because the licensee did not effectively incorporate internal operating experience and lessons learned from previous VA-66 ventilation system failures during spent fuel pool refueling operations and plant safety. Specifically, the licensee failed to systematically collect, evaluate, and communicate to affected internal stakeholders in a timely manner relevant internal and external operating experience, [P2(a)]

Inspection Report# : [2012004](#) (*pdf*)

**Significance:**  Jun 07, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO CORRECTLY TRANSLATE THE DESIGN BASIS FOR THE CONTAINMENT SPRAY SYSTEM**

The team identified a finding of very low safety significance involving a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in that, design control measures did not assure that the design basis for safety related systems were correctly translated into procedures. Specifically, the licensee failed to correctly translate the design basis of the containment spray system into Technical Basis Document Procedure TBD-EOP-05, "Uncontrolled Heat Extraction." After identification, the licensee entered this issue in the corrective action program as Condition Report 2011-06802.

The failure to correctly translate the design basis of the containment spray system into an emergency operating procedure technical basis document is a performance deficiency. It is more than minor and therefore a finding because it adversely affects the procedure quality attribute of the barrier integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The incorrect guidance in the emergency operating procedure basis document could result in a licensed operator taking incorrect action to secure containment spray based on a faulty understanding of the expected system response.

Securing containment spray during a main steam line break would challenge the safety function of the containment building, increasing the risk to public health and safety. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. In accordance with Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," a phase 1 screening was performed and the finding was determined to be of very low safety significance (Green) because the finding: (1) did not represent only a degradation of the radiological barrier function provided for the control room, or auxiliary building, or spent fuel pool; (2) did not represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere; (3) did not represent an actual open pathway in the physical integrity of reactor containment system, containment isolation system, and heat removal components; and (4) did not involve an actual reduction in function of hydrogen igniters in the reactor containment. There was no cross-cutting aspect assigned to this performance deficiency because it was not indicative of current plant performance.

Inspection Report# : [2012301](#) (*pdf*)

**Significance:**  Jun 07, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **INADEQUATE PROCEDURES WITH FOUR EXAMPLES FOR THE BARRIER INTEGRITY CORNERSTONE**

The team identified a finding of very low safety significance involving a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," with four examples.

- Example 1. The normal operating instruction for reactor coolant pumps, OI-RC-9, "Reactor Coolant Pump Operation," contains pump trip requirements that conflict with the pump trip requirements provided in the Abnormal Operating Procedure AOP-35, "Reactor Coolant Pump Malfunctions." After identification, the licensee entered this issue in the corrective action program as Condition Report 2012-03145.
- Example 2: Annunciator Response Procedure ARP-DCS-SCEAPIS incorrectly directs the operators to restore a control element assembly group to within proper overlap using manual group mode, instead of manual individual mode. After identification, the licensee entered the issue into the corrective action program as Condition Report 2011-07172.
- Example 3: Neither the Annunciator Response Procedure ARP-DCS-SCEAPIS, nor the control element assembly Abnormal Operating Procedure AOP-02, "CEA and Control System Malfunctions," address excessive overlap between control element assembly groups caused by operator error instead of a digital control system failure. After identification, the licensee entered the issue into the corrective action program as Condition Report 2011-09653.
- Example 4: The licensee's Abnormal Operating Procedure AOP-21, "Reactor Coolant System High Activity," has multiple values for high reactor coolant system activity requirements that conflict on whether or not it is necessary to initiate a plant shutdown. Additionally, this procedure is not current with the most recent action levels contained in SO-O-43 "Fuel Reliability Management Plan." This fuel reliability management plan currently lists four action levels, while the actions in the abnormal operating procedure are based on five action levels. The fifth action level actions would not be performed since no fifth action level is defined in SO-O-43. After identification, the licensee entered the issue into the corrective action program as Condition Report 2012-03143.

These failures to prescribe activities affecting quality by procedures or to include the appropriate acceptance criteria are performance deficiencies. Each example is more than minor and is therefore a finding because it adversely affects the procedure quality attribute of the barrier integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. These examples either could have significantly affected, or were shown during examination preparation and administration to have actually affected the operator's ability to perform the activity affecting quality. In accordance with Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," a phase 1 screening was performed and each example except for Example 1 was determined to be of very low safety significance (Green) because the fuel cladding barrier was affected but did not affect the reactor coolant system or containment barriers.

Example 1 was determined to be of very low safety significance (Green) because the finding: (1) did not represent only a degradation of the radiological barrier function provided for the control room, or auxiliary building, or spent fuel pool; (2) did not represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere; (3) did not represent an actual open pathway in the physical integrity of reactor containment system, containment isolation system, and heat removal components; and (4) did not involve an actual reduction in function of hydrogen ignitors in the reactor containment. The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not implement a corrective action program with a low threshold for identifying issues in that licensed operators deviate from procedures when procedures cannot be implemented as written without writing necessary condition reports to fix the deficient procedures.

Inspection Report# : [2012301](#) (*pdf*)

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## Emergency Preparedness

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Promptly Recognize and Communicate Siren System Failures**

The inspector identified a non-cited violation of 10 CFR 50.54(q)(2) for failure to follow the licensee's emergency plan. Specifically, the licensee did not follow the Radiological Emergency Response Plan, Section E, "Notification Methods and Procedures," Revision 26, which requires offsite warning sirens be activated by radio signal. The licensee did not respond to indications of siren system failure for approximately six hours and did not inform offsite authorities of the need for alternative means to notify the public for three additional hours. This failure has been entered into the licensee's corrective action system as Condition Reports 2012-01435 and 2012 01489.

This finding is more than minor because it affected the facilities and equipment cornerstone attribute (availability of the alert and notification system) and impacted the cornerstone objective of implementing adequate measures to protect public health and safety. This finding was evaluated using the Emergency Preparedness Significance Determination Process and was determined to be of very low safety significance because the planning standard function was not lost or degraded. The function was not degraded because some sirens remained functional in the 0-5 and 5-10 mile areas of the emergency planning zone, and offsite officials could have promptly recognized failed sirens. The finding had a cross-cutting aspect in the work control component of the human performance area because the communications department and control room personnel did not communicate and coordinate as necessary with offsite organizations.

Inspection Report# : [2012002](#) (*pdf*)

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure To Comply With An Emergency Plan Requirement To Notify Offsite Authorities Within 15 Minutes Of An Emergency**

The inspectors identified a non-cited violation of 10 CFR 50.54(q) for failure to follow an emergency plan requirement during a declared alert. Specifically, the licensee did not notify the states of Nebraska and Iowa of the emergency within 15 minutes of event declaration as required by Section E, paragraph 2.4, of their emergency plan. This failure has been entered into the licensee's corrective action system as Condition Report 2011-8529.

This finding is more than minor because it affects safety and impacts the cornerstone attributes of emergency response organization performance and actual event response. The finding had a credible impact on the Emergency Preparedness Cornerstone objective because untimely notification to offsite authorities degrades their ability to implement adequate measures to protect the health and safety of the public. The finding is of very low safety

significance because it was a problem with implementation of the site emergency plan during an event that did not affect the ability of offsite authorities to respond to the emergency. The finding had a crosscutting aspect in the work practices (management oversight) component of the human performance area because licensee management did not set performance expectations for event notifications and monitor performance to ensure compliance with emergency plan requirements.

Inspection Report# : [2012002](#) (*pdf*)

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## Occupational Radiation Safety

**Significance:**  Nov 17, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure to Follow Radiation Work Permit Requirements**

Inspectors reviewed a self-revealing Green noncited violation of Technical Specification 5.8.1.a for the failure to follow procedure requirements related to radiation work permit requirements. Specifically, workers unexpectedly created a high radiation area when working with tri nuke filter hosing while on a radiation work permit that did not allow access into a high radiation area. Both workers received alarms on their dosimeters. The licensee entered the issue into its corrective action program for evaluation and review.

The failure to follow a procedure was a performance deficiency. The finding was more than minor because it negatively impacted the Occupational Radiation Safety cornerstone's attribute of program and process, in that not following the requirements of the radiation work permit led to workers' unplanned, unintended dose. Using NRC Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the finding was determined to be of very low safety significance because: (1) it was not associated with as low as is reasonably achievable (ALARA) planning or work controls, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. The finding has a problem identification and resolution crosscutting component associated with operating experience because the licensee didn't implement operating experience through changes to station procedures. Specifically, there was operating experience which could have prevented the issue if it had been discussed at the pre-job brief.

Inspection Report# : [2012011](#) (*pdf*)

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## Public Radiation Safety

**Significance:**  Aug 18, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Establish and Implement Adequate Procedures for Meteorological Monitoring and the Off-Site Dose Calculation Manual**

Inspectors identified two examples of a non-cited violation of very low safety significance of Technical Specification 5.8.1 for the failure to adequately establish, implement, and maintain procedures for: (1) the onsite meteorological monitoring systems; and (2) reporting meteorological data in accordance with the Offsite Dose Calculation Manual requirements. The licensee entered these issues into the corrective action program as Condition Reports 2012-05658, 2012-05724 and 2012-05777

The failure to establish, implement, and maintain procedures to ensure the meteorological monitoring equipment is operable and required meteorological data is reported was a performance deficiency. This finding is more than minor because it affected the Public Radiation Safety cornerstone attribute of program and process. The failure to have and use applicable procedures to ensure the operability of the meteorological monitoring system and the accuracy of the

Annual Radiological Effluent Release Report has the potential to impair public dose assessments of routine and accidental radioactive effluent releases. Using IMC 0609 Appendix D, "Public Radiation Safety Significance Determination Process," the inspectors determined this finding to be of very low safety significance because the finding did not represent a significant degradation of the ability to assess dose to members of the public and the actual releases were well below established limits for members of the public. This finding has a cross-cutting aspect in the human performance area associated with the resources component because the licensee failed to ensure that personnel, procedures, and other resources were adequate for the operability of the meteorological monitoring system and implementation of Offsite Dose Calculation Manual requirements related to the annual effluent report, [H.2(c)]  
Inspection Report# : [2012004](#) (*pdf*)

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## Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

**Significance:** N/A Sep 30, 2012

Identified By: NRC

Item Type: VIO Violation

### **Failure to Update the Updated Safety Analysis Report- Solid Waste**

The inspectors identified a cited violation of 10 CFR 50.71(e), "Maintenance of Records, Making of Reports," for the failure to update the Updated Safety Analysis Report with a detailed description of the Original Steam Generator Storage Facility. Specifically, since December 2006, the licensee stored a significant source of radioactivity in the Original Steam Generator Storage Facility, but failed to describe the volume of waste, the principal sources of radioactivity, the total quantity of radioactivity, and the estimated dose rate at the site boundary per curie of radioactivity in the Updated Safety Analysis Report. The licensee has entered this violation into their corrective action program as Condition Report 2012-05725.

This issue was evaluated using traditional enforcement because it has the potential to impact the NRC's ability to perform its regulatory function. This issue is being characterized as a Severity Level IV violation in accordance with Section 6.1.d.3 of the NRC Enforcement Policy. Cross-cutting aspects are not assigned to traditional enforcement violations

Inspection Report# : [2012005](#) (*pdf*)

**Significance:**  Feb 02, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Correct Identified Corrective Action Program Deficiencies**

The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions." After identifying deficiencies that constituted a significant condition adverse to quality in the implementation of the corrective action program, the licensee failed to identify the cause and develop corrective actions to preclude repetition.

The licensee's failure to implement corrective actions for an identified root cause in accordance with corrective action program procedures was a performance deficiency. This performance deficiency is more than minor because it is

associated with, and adversely affects, the protection-against-external-factors attribute of the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding is of very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the decision-making component of the human performance crosscutting area because the licensee failed to use a systematic process when faced with the uncertain or unexpected situation that deficiencies related to external flood protection also extended into other station activities and could impact overall station performance.

Inspection Report# : [2011006](#) (*pdf*)

**Significance:** N/A Feb 02, 2012

Identified By: NRC

Item Type: FIN Finding

**Fort Calhoun Station, 2011, Biennial Problem Identification and Resolution Inspection Summary**

Overall, the NRC noted deficiencies in all three areas of the problem identification and resolution process. Most significantly, the licensee's own root cause assessment of the external flood protection violation concluded that they had not been effective in ensuring that the associated performance deficiencies were adequately identified, evaluated, and resolved, and that these same performance deficiencies also extended into other station activities and could impact overall station performance – a significant condition adverse to quality. This is a concern because problem identification and resolution is one of the primary reactor oversight process crosscutting areas that the NRC defines as the fundamental performance attribute that extends across all cornerstones of safety. The NRC identified that the licensee failed to correct this condition, identify the cause, and preclude recurrence as required.

The team noted that while the licensee was identifying and placing a large number of adverse conditions into the corrective action process (nearly 21,000 in two and a half years), the associated corrective actions were often narrowly focused and failed to adequately identify the extent of cause and extent of condition, where required. The team also identified that due to the lack of an effective trending program, the licensee failed to identify degrading performance and therefore was unable to take action prior to the manifestation of conditions adverse to quality. Furthermore, the team identified numerous condition reports whose prioritization was inconsistent with the condition described. Examples included inoperable safety related equipment classified as “broke-fix,” contrasted with a minor personal injury, which resulted in an extensive root cause analysis. Several workers commented that everything was classified a priority, and therefore; nothing was a priority. In fact, the licensee classified 65 condition reports as significant conditions adverse to quality during the inspection period, roughly four times the typical number. Additionally, the team found examples of repetitive failures that were indicative of programmatic inadequacies. These examples included the failure to adequately utilize industry operating experience, inadequacies in the implementation of the corrective action program which was narrowly focused on resolving discrete conditions, and limited use of 10 CFR Part 21 reportability issues, which were typically closed without appropriate systematic equipment evaluation considerations.

Inspection Report# : [2011006](#) (*pdf*)

Last modified : February 28, 2013