Fort Calhoun
2Q/2011 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Inadequate Maintenance Procedure Results in Water in East Switchgear Room and Room 19
The inspectors reviewed a self-revealing Green noncited violation of Fort Calhoun Station Technical Specification 5.8.1, for the licensee's failure to provide an adequate maintenance procedure for fire protection system flushing. Specifically, while performing OP-PM-FP-1000 on August 19, 2010, water backed up the VA-87 drain line and spilled onto the east switchgear room floor, into Room 19 below, as well as pooling on top of and inside of cable trays. The licensee has entered this issue into their corrective action program as Condition Report 2010-4423.

The inadequate maintenance procedure is a performance deficiency. This finding is more than minor because if left uncorrected the performance deficiency could have the potential to lead to a more significant safety concern. Specifically the use of OP-PM-FP-1000 allows the potential wetting of safety related equipment in the east switchgear room and Room 19. Because this finding occurred while the unit was operating at full power, the inspectors used Inspection Manual Chapter 0609, Appendix A, to determine its significance. Using Attachment 4 of that appendix, the inspectors determined that the finding has very low safety significance because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. Through conversations with the fire protection system engineer and other licensee members and the fact that similar issues have occurred in the past, the inspectors determined that the primary cause of this finding was the failure to adequately assess the significance of previous condition reports which would have required them to perform a more thorough cause evaluation. Therefore, this finding has a crosscutting aspect in the corrective action program component of the problem identification and resolution area because the licensee did not thoroughly evaluate problems, such that, the resolutions address causes and extent of conditions, as necessary.
Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 22, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform a Risk Assessment When Required by 10 CFR 50.65(a)(4) for Maintenance in the Vicinity of Safety-Related Equipment
The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for failing to perform a risk assessment prior to performing activities involving a man basket in the vicinity of the T1 transformer. The licensee has entered this performance deficiency into the corrective action program as Condition Report 2010-4689.

The inspectors determined that the licensee's failure to perform a risk assessment and implement appropriate risk management actions was a performance deficiency. The finding was more than minor because it was associated with the protection against external factors attribute of the Initiating Events Cornerstone. It directly affected the 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. Additionally, if left uncorrected, the practice of not adequately evaluating crane activities in the vicinity of safety-related equipment by appropriately trained individuals would become a more significant safety concern. Specifically, in that it could result in a more than minimal increase in risk associated with other risk important equipment that would not be identified and not result in appropriate actions being taken. The inspectors evaluated this finding using the Appendix K, "Maintenance Risk Assessment, and Risk Management Significance Determination Process" worksheets of Manual Chapter 0609 because the finding is a maintenance risk assessment issue. Flowchart 1, "Assessment of Risk Deficit," requires the inspectors to determine the risk deficit associated with this issue. This finding was determined to be of very low safety significance because the incremental

core damage probability deficit was less than 1 x 10-6. Because of the confusion with performing a risk assessment with a crane but not with a man basket, the finding had crosscutting aspects in the area of human performance associated with resources in that the licensee failed to provide complete, accurate, and up-to-date procedures.

Inspection Report# : 2010005 *(pdf)*

Mitigating Systems

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Adequately Design a Reactant Coolant Pump Lube Oil Collection System
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix R, Section III.O for the failure to ensure an adequate seismic design of the reactor coolant pumps oil collection system. The licensee used 2-inch copper pipe with brazed joints in the lube oil collection system. The seismic analysis of the system assumed the use of ASME Section IX during the installation of the system, but no codes or standards were used by the licensee for the brazed joints.

The inspectors determined that the failure to design and install an adequate oil collection system which included provisions for the drain lines to the oil collection tank was a performance deficiency. This finding had a credible impact on safety because the inadequate installation and design of the oil collection systems presented a degradation of a fire confinement component, which had a fire prevention function of not allowing an oil leak. The inspectors determined the finding was more than minor because it impacted the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of protection against external factors, such as a fire. The inspectors reviewed Inspection Manual Chapter 0609, Appendix F, and determined the finding was of very low safety significance, because of the low degradation rating of the fire confinement category related to the as found condition of the oil collection piping, the extremely low frequency of reactor coolant pump oil leaks, minor actual reactor coolant pump oil leaks during the past operating cycle, and other area fire protection defense-in-depth features such as automatic fire detection, manual suppression capability, and safe shutdown capability from the main control room. This finding involved a legacy issue associated with a modification for original installation; therefore, there were no assigned cross-cutting aspects.

Inspection Report# : 2011003 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Scaffolding Procedure
The inspectors identified a noncited violation of Technical Specification 5.8.1.a for failure to follow scaffold specification and construction Procedures SO-M-35 and PED-CSS-12. This led to the licensee declaring a number of emergency core cooling components inoperable and entering technical specification 2.0.1.

The inspectors determined that not following a procedure required by Technical Specification 5.8.1.a was a performance deficiency. The finding was more than minor because if left uncorrected it would have the potential to lead to a more significant safety concern. The licensee routinely failed to perform seismic evaluations of scaffolds erected near safety-related equipment not constructed in accordance with Procedures PED-CSS-12 or SO-M-35 for preconfigured seismic scaffolding. The finding was associated with the Mitigation Systems Cornerstone while the reactor was operating; therefore, Inspection Manual Chapter 0609, Attachment 4 screening checklist was used. The finding was determined to have very low safety significance because it did not involve the total loss of any safety function, and did not contribute to external event initiated core damage accident sequences. The inspectors determined the primary cause of the finding was lack of the licensee’s oversight of the scaffolding program. The finding had a

crosscutting aspect in the area of human performance, specifically, work practices, in that, the licensee failed to ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported.
Inspection Report# : 2011003 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Procedural Guidance to Replace Or Evaluate Age Degraded Components
A self-revealing noncited violation of Fort Calhoun Technical Specification 5.8.1, "Procedures," occurred due to the failure of the licensee to ensure that adequate procedures were available for maintenance which was conducted on the reactor protective systems power supplies. Specifically, there was no procedural guidance to require replacement of power supplies, or an engineering justification for continued operation, once power supplies exceeded their vendor recommended life, and/or showed signs of failure and degradation.

The inspectors determined that the licensee's failure to provide procedural guidance to evaluate and/or replace age-degraded components was a performance deficiency. This was a result of the licensee's failure to properly implement a required procedure, and was within the licensee's ability to foresee and correct and could have been prevented. This performance deficiency was more than minor because it could be reasonably viewed as a precursor to a significant event, it could lead to a loss of the reactor protective system. The inspectors evaluated this finding using Inspection Manual Chapter 0609, Attachment 4, and determined that this finding was associated with the Mitigating Systems Cornerstone, specifically the primary degraded reactivity control contributor. Because this finding occurred while the unit was operating at full power, the inspectors used Inspection Manual Chapter 0609 to determine its significance. The inspectors determined that the finding represented a qualification deficiency confirmed not to result in a loss of functionality because none of the failures to date prevented a reactor protective systems channel from tripping. Therefore, in accordance with the Phase 1 screening, the finding was of very low risk significance.

This finding had a crosscutting aspect in the area of problem identification and resolution associated with the component of operating experience because the licensee failed to adequately evaluate and communicate relevant internal and external operator experience.
Inspection Report# : 2011003 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Verify Design Adequacy of Refueling Water Tank Vortex Eliminator
The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, which states, in part, that "design control measures shall provide for verifying or checking the adequacy of design, such as, by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." Specifically, since 1998, the licensee failed to verify the adequacy of the design of the safety injection refueling water tank vortex eliminator to prevent potential air entrainment due to vortexing in safety-related pump suction piping. This finding was entered into the licensee's corrective action program as Condition Reports 2007-2452 and 2011-0311.

The inspectors determined that the failure to verify the adequacy of the safety injection refueling water tank vortex eliminator was a performance deficiency. The finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Inspectors performed a Phase 1 screening, in accordance with Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in loss of operability or functionality. Specifically, the licensee performed subsequent analysis which demonstrated that vortexing in the safety injection refueling water tank would not impact safety-related pump operation during a design basis event. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.

Inspection Report# : 2011002 *(pdf)*

Significance: W Jan 21, 2011
Identified By: NRC
Item Type: AV Apparent Violation
Failure to Correct a Degraded Contactor in the Reactor Protective System
The inspectors identified an apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to ensure that the cause of a significant condition adverse to quality was determined and corrective actions taken to preclude repetition. Specifically, the licensee failed to identify the cause and preclude the shading coils from becoming loose material in the M2 trip contactor assembly of the reactor protection system that subsequently resulted in a failed contactor.
The inspectors determined that the licensee's failure to preclude shading coils from repetitively becoming loose material in the M2 reactor trip contactor was a performance deficiency. The finding is more than minor because it affected the Mitigating Systems Cornerstone, and it directly affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the issue using the Significance Determination Process Phase 1 Screening Worksheet for the Initiating Events, Mitigating Systems, and Barriers Cornerstones provided in Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that the finding represented the actual loss of a single train (i.e., each of the four contactors are considered a train) of non-Technical Specification equipment, designated as risk-significant per 10 CFR 50.65, for greater than 24 hours. Therefore, the finding was potentially risk significant and a Phase 2 analysis was required. The inspectors determined that the pre-solved table does not contain a target suitable for evaluating the finding of interest and informed the regional senior reactor analyst that use of the risk-informed notebook would be necessary. The senior reactor analyst completed a Phase 3 analysis using the plant-specific.

Standardized Plant Analysis Risk Model for Fort Calhoun, Revision 3.50 modified to include a detailed modeling of the reactor protection system. The exposure period of 64 days represented the 63 days from the last verification of contactor operation, which is most likely the time of failure, until the failure of the quarterly surveillance plus the 1-day repair time until de-energization of half the reactor protection system. External events impacting the risk included seismic and internal fire initiators. The resulting risk was calculated to be 2.6 x 10-5 indicating that the finding was of preliminarily substantial safety significance (Yellow). The final significance of this finding is to be determined (TBD). This finding has a crosscutting aspect in the area of human performance, decision making component, because the licensee did not use conservative assumptions in the evaluation of the ongoing problems with the trip contactors.
Inspection Report# : 2011007 *(pdf)*

Significance: G Jan 05, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Operating Instruction Results in a Loss of Auxiliary Feedwater."
A self-revealing Green noncited violation of Fort Calhoun Station Technical Specification 5.8.1 occurred for an inadequate procedure for securing auxiliary feedwater flow when feeding the steam generators through the auxiliary feedwater ring. This inadequacy resulted in a complete loss of auxiliary feedwater for approximately three minutes. This was entered into the licensee's corrective action program as Condition Report 2011-0839.

The inspectors determined that the licensee's inadequate operating instruction procedure was a performance deficiency. This finding was more than minor because it adversely impacted the human 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. The inspectors performed the initial significance determination for the inoperable auxiliary feedwater system. The turbine-driven and motor-driven auxiliary feedwater pumps were inoperable for approximately three minutes, while the pump discharge lines were isolated during startup. The non-safety diesel-driven auxiliary feedwater pump remained available. The inspectors used the Inspection Manual 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The finding screened to a Phase 2 significance determination because it involved an actual loss of safety function in the Mitigating Systems Cornerstone. A Region IV senior reactor analyst performed a Phase 2 significance determination and attempted to use

the pre-solved worksheet from the “Risk Informed Inspection Notebook for Fort Calhoun Station,” Revision 2.01a. However, the pre-solved worksheet did not include the simultaneous failure of two auxiliary feedwater pumps. Therefore, the analyst performed a bounding Phase 3 significance determination. The analyst used the Fort Calhoun Standardized Plant Analysis Risk model, Revision 8.15, dated August 27, 2010, to calculate the conditional core damage probability, for a bounding event that included the failure to start for both the motor and turbine-driven auxiliary feedwater pumps. The change in core damage frequency was approximately 8.6x10-9/year. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.
Inspection Report# : 2011002 *(pdf)*

Significance: G Nov 17, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain Licensed Operator Examination Integrity
The inspectors identified a Green noncited violation of 10 CFR Part 55.49, “Integrity of Examinations and Tests,” for the failure of the licensee to ensure that the integrity of an operating test administered to licensed operators was maintained. Two licensed operators received five job performance measures for their retake operating tests that had been potentially compromised during earlier weeks when this week’s operating test book was left out and uncontrolled overnight in the training building. These job performance measures were removed from the operating tests for subsequent weeks and a condition report was written to ensure that these job performance measures were not used in subsequent weeks. However, these actions did not prevent these job performance measures from being used for the retake operating tests for two licensed operators that failed previous operating tests. This resulted in a compromise of operating test integrity because control of these items was lost; however, it did not lead to an actual effect on the equitable and consistent administration of the examination. This issue was entered into the licensee’s corrective action program as Condition Report 2010-5977.

The failure of the licensee’s training staff to maintain the integrity of examinations administered to licensed operations personnel was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it adversely impacted the human 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. Additionally, if left uncorrected, it could have become more significant in that allowing untested licensed operators (in this case, operators that had the potential to have an invalid test because of the lack of examination integrity) at the controls could be a precursor to a more significant event if undetected performance deficiencies develop. Using Inspection Manual Chapter 0609, “Significance Determination Process,” Phase 1 worksheets, and the corresponding Appendix I, “Licensed Operator Requalification Significance Determination Process,” the finding was determined to have very low safety significance (Green) because, although the finding resulted in a compromise of the integrity of operating test job performance measures and compensatory actions were not immediately taken when the compromise should have been discovered in 2009, the equitable and consistent administration of the exam was not actually impacted by this compromise. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective actions because the licensee did not take appropriate corrective actions to address safety issues in that an operating test compromise issue occurred that was entered into the corrective action program as Condition Report 2009 4066. This corrective action document stated that these compromised items shall not be used on any subsequent operating tests for that cycle and they were subsequently used on the 2009 annual operating test.

Inspection Report# : 2010005 *(pdf)*

Significance: G Nov 01, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Determine the Cause of the Out Of Tolerance Condition Regarding Reactor Protection System Channel A Trip Unit 6
The inspectors identified a Green noncited violation of 10 CFR 50 Appendix B Criterion XVI, “Corrective Actions,” which states 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 non-conformances 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 this, between July 28, 2003, and November 29, 2010, the licensee failed to determine the cause of the out of tolerance condition impacting reactor protection system channel A trip unit 6, which was a significant condition adverse to qualty. This was entered into the licensee's corrective action program as Condition Report 2010-6190.

• The licensee's repeated failure to preclude the out-of-tolerance condition regarding reactor protection system channel A trip unit 6 is a performance deficiency. This finding is more than minor because if left uncorrected, the finding could have become more significant, in that, the licensee could fall below the technical specification "Minimum Operable Channels" if two additional trip unit six channels (B, C, or D) became inoperable. Because this finding occurred while the unit was operating at full power, the inspectors used Inspection Manual Chapter 0609 to determine its significance. Using Attachment 4 of that chapter, the inspectors determined that this finding has a very low safety significance (Green) because it was not a design or qualification deficiency, does not represent an actual loss of safety function, nor did it screen as potentially risk significant for external events. The finding was indicative of present performance and had a crosscutting aspect in the area of human performance associated with decision-making in that the licensee failed to use conservative assumptions in decision-making. The failure of the licensee to preclude repetition of the out-of-tolerance condition of reactor protection system channel A trip unit 6 is a significant condition adverse to quality.
Inspection Report# : 2011002 *(pdf)*

Significance:  Oct 04, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Properly Apply an Approved ASME Code Case
The inspectors identified a Green noncited violation of 10 CFR 50.55a(b)(5)(i) because the licensee failed to adequately apply ASME Section XI Code Case N-513-2 when they evaluated a degraded section of raw water piping for operability. The licensee has entered this performance deficiency in the corrective action program as Condition Report 2010-5680.

The inspectors determined that the licensee's failure to adequately apply ASME Code Case N-513-2 was a performance deficiency. The finding was more than minor because it was associated with the protection against external factors attribute of the Mitigating Systems Cornerstone, and it directly affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, improper application of an approved code case would become a more significant safety concern in that it could result in the failure to identify inoperable safety related piping. Because this finding occurred while the unit was operating at full power, the inspectors used Inspection Manual Chapter 0609 to determine its significance. Using Attachment 4 of that chapter, the inspectors determined that this finding has a very low safety significance (Green) because it was not a design or qualification deficiency, does not represent an actual loss of safety function, nor did it screen as potentially risk significant for external events. Because the licensee revised an old operability determination and did not recognize that the code case application was incorrect, the finding had crosscutting aspects in the area of human performance associated with decision-making in that the licensee failed to make safety-significant or risk-significant decisions using a systematic process.
Inspection Report# : 2010005 *(pdf)*

Significance:  Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Documentation of the Adequacy of Design for the Pumps that Transfer Fuel Oil from Storage Tank FO-10 to FO-01
The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criteria III due to the failure of the licensee to perform suitable testing to determine the adequacy of the design of equipment related to transferring diesel fuel from one storage tank to another. Specifically, the inspectors questioned whether fuel oil transfer pump FO-37 or a portable hand pump to be used in the event that FO-37 was unavailable to transfer fuel from storage tank FO-10 to FO-1 would be able to perform the design function. No calculations or previous testing documentation could be provided and when tested to demonstrate that the portable hand pump could perform the intended design function, the portable hand pump failed. Subsequently, the licensee evaluated that fuel oil transfer pump FO-37 is adequately

designed to transfer fuel oil from FO-10 to FO-1. The licensee entered this issue into the corrective action program as Condition Reports 2010-3123, 2010-3921, and 2010-4315.
The inspectors determined that the licensee's failure to provide calculations or testing documentation that fuel oil transfer pump FO-37 or the designated portable hand pump could perform the intended design function was a performance deficiency. This finding is greater than minor because it affected the Mitigating System Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the equipment performance attribute to maintain availability and reliability of the diesel generators. Because this finding occurred while the unit was operating at full power, the inspectors used Inspection Manual Chapter 0609 to determine its significance. Using Attachment 4 of that chapter, the inspectors determined that this finding has a very low safety significance (Green) because it was not a design or qualification deficiency, does not represent an actual loss of safety function nor did it screen as potentially risk significant for external events. Since the finding is not indicative of current licensee performance, there is no crosscutting aspect assigned to this finding.
Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform Vendor and Industry Recommended Testing on Safety-Related and Risk Significant 4160 V and 480 V Circuit Breakers
The inspectors identified a Green noncited violation of Technical Specification 5.8.1(a) for inadequate procedures associated with 4160 V and 480 V safety-related breaker maintenance procedures. The inspectors determined that maintenance procedures used to ensure that 4160 V and 480 V safety-related breakers were being maintained and overhauled in a timely manner were inadequate. The licensee did not have an engineering analysis or technical basis to justify the deviation from vendor and/or Electric Power Research Institute guidance. The inspectors determined that this issue affected the procedure quality attribute for maintenance procedures of the Mitigating System Cornerstone of reactor safety. Specifically, the issue was more than minor because the failure to incorporate the vendor required maintenance and frequency or fully incorporate Electric Power Research Institute maintenance recommendations for extending the service interval into maintenance procedures for safety related breakers. If left uncorrected, this failure affected the availability, reliability, and capability of mitigating systems that respond to initiating events to prevent undesirable consequences because the reliability of safety-related breakers refurbished using the deficient procedures cannot be predicted. This issue was entered into the licensee's corrective action program as Condition Report 2009-2306.

Using the Significance Determination Process, Phase 1 Screening Worksheet, for the Initiating Events, Mitigating Systems, and Barriers Cornerstones the finding was potentially risk significant for multiple systems. Because the probability of multiple system effects is not effectively addressed by a Phase 2 analysis, a Phase 3 analysis was performed. The analyst determined that while the licensee failed to perform adequate maintenance on the breakers, the actual failure rate of the breakers was no greater than the theoretical design failure rate. The finding was determined to be of very low safety significance because the deficiency did not result in any loss of function. The finding was not risk significant due to a seismic, flooding, or severe weather-initiating event and because other plant-specific analyses that identify core damage scenarios of concern were not impacted. This finding has a crosscutting aspect in the area of problem identification and resolution because the licensee did not effectively incorporate pertinent industry operating experience into the preventive maintenance programs for the 4160 V and 480 V safety-related and risk significant non-safety-related circuit breakers.
Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Inadequate Maintenance Procedure Results in a Plant Shutdown
A self-revealing Green noncited violation of Fort Calhoun Station Technical Specification 5.8.1 occurred for an inadequate procedure for verifying the connection between cable lugs and cables. This inadequacy resulted in the loss of Motor Control Center MCC-3A1 and a subsequent plant shutdown. The licensee repaired the affected equipment and entered this issue into the corrective action program as Condition Report 2010-4423.

The inspectors determined that the licensee's inadequate maintenance procedure was a performance deficiency. This finding was greater than minor because it was similar to a non-minor example 4.b in Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that a procedural error caused a reactor trip or other transient. Because this finding occurred while the unit was operating at full power, the inspectors used Inspection Manual Chapter 0609 to determine its significance. Using Attachment 4 of that chapter, the inspectors determined that this finding has very low safety significance because all of the items in Table 4a, of the Mitigating Systems Cornerstone checklist, were answered in the negative. Since the finding is not indicative of current licensee performance, there is no crosscutting aspect assigned to this finding
Inspection Report# : 2010004 *(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)*

Barrier Integrity

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Radiation Work Permit Procedure
Inspectors identified a noncited violation of Technical Specification 5.8.1a for the failure to follow procedural requirements to plan and carry out decontamination work in the spent fuel pool transfer canal. On January 24, 2011, decontamination work was performed in the spent fuel pool transfer canal, using Radiation Work Permit 11-3317. While planning and controlling the work, the licensee failed to follow multiple procedure steps. Specifically, the licensee did not prepare an ALARA planning worksheet as the initial step of generating the radiation work permit, did not document justification for changing the electronic dosimeter set points which were eventually determined to be

inappropriate, and did not perform an ALARA briefing before the entries were made into the spent fuel pool transfer canal, which was posted as a restricted locked high radiation area. The inspectors also determined that there were aspects of the procedure that contained vague expectations, which contributed to decisions being made without using the procedure.

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, by not following the procedure; radiological safety attributes built into the radiation work permit program were circumvented. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined that the violation was of very low safety significance because: (1) it was not associated with 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. This deficiency had a crosscutting aspect in the area of human performance related to work practices. Specifically, the licensee did not communicate human error prevention techniques, such as, holding pre-job briefs, self- and peer- checking, and proper documentation of activities.

Inspection Report# : 2011003 *(pdf)*

Significance: G Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Translate Calculation into Calibration Procedure
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, "Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2 and as specified in the license application, for those structures, systems, and components for which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions." Contrary to the above, the licensee failed to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2 and as specified in the license application, for those structures, systems, and components for which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Specifically, since January 2009, the licensee failed to correctly translate results of Calculation FC 05561, "CCW Relief Valve Setpoints," into calibration procedures used to calibrate pressure control switches PCS-412 and PCS-413. The licensee has entered this violation into their corrective action program as Condition Report 2010-3658.

The inspectors determined that the failure to correctly translate the results of the setpoint calculation into calibration procedures and instructions as required by 10 CFR Part 50, Appendix B, Criterion III, "Design Control" is a performance deficiency. The finding was more than minor because it adversely affected the Barrier Integrity Cornerstone objective to provide reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. Additionally, the finding was more than minor because the finding resulted in a condition where there was a reasonable doubt on the operability of the component cooling water system containment isolation valves. Using Phase 1 of Inspection Manual Chapter 0609, "Significance Determination Process," the finding was determined to have very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the auxiliary building. This finding has a crosscutting aspect in the area of human performance work practice because the licensee failed to define and effectively communicate expectations regarding procedural compliance and personnel following procedures. Specifically, in January 2009, the licensee failed to effectively communicate expectations regarding personnel following procedures to implement calculation changes.
Inspection Report# : 2010004 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Sep 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Follow Radiation Work Permit Requirements
The inspectors reviewed a self-revealing, noncited violation of Technical Specification 5.8.1, for failure to follow radiation work permit requirements. On November 13, 2009, two individuals became contaminated while cleaning the gasket seating surface on the endbell of the letdown heat exchanger because they did not use face shields as required by the radiation work permit. The licensee immediately restricted the two individuals from entry into the radiologically controlled area, conducted a coaching session with the individuals involved and placed this issue into the corrective action program as Condition Report 2009-5688.

The failure to follow the instructions listed on a radiation work permit was a performance deficiency. The finding was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute (exposure control) of program and process and affected the cornerstone objective, in that, the failure to follow radiation work permit instructions increased personnel dose. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding to have very low safety significance because: (1) it was not associated with 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 human performance crosscutting aspect associated with work practices, human error prevention techniques, because the individuals failed to use self and peer checking to ensure they were signed onto the appropriate task for the work to be performed. [H.4 (a)]
Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Properly Plan a Maintenance Activity
The inspectors reviewed a self-revealing, noncited violation of Technical Specification 5.8.1, for failure to appropriately control radiation exposures due to improperly planned maintenance activities associated with Work Package 09-AP-20. The maintenance work involved valve modifications and boric acid system cleanups. These activities resulted in exceeding the original dose estimate by more than 50 percent. The licensee entered this issue into the corrective action program as Condition Reports 2009-6171, 2009-6264 and 2010-1696.

The failure to properly plan maintenance activities to minimize personnel radiation dose is a performance deficiency. This finding is greater than minor because it affected the Occupational Radiation Safety Cornerstone attribute of program and process in that ALARA planning or radiological controls did not prevent unplanned, unintended dose for a work activity. This caused increased collective radiation dose for the job activity to exceed the planned dose of approximately 14 rem by more than 50 percent. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined this finding to be of very low safety significance because the finding involved ALARA planning and controls and the licensee's latest rolling 3-year average does not exceed 135 person-rem. This finding had an associated human performance crosscutting aspect in the work practices component because the licensee did not ensure supervisory and management oversight of work activities, including the contractor, to maintain doses ALARA.
Inspection Report# : 2010004 *(pdf)*

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings

pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Significance: SL-IV Oct 08, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Submit a Timely Licensee Event Report
The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.73 (a)(2)(i)(B) for the licensees' failure to submit a licensee event report within 60 days of discovery. On November 29, 2010, the licensee had the available information to determine reactor protection system channel A trip unit 6 had been inoperable from November 8 until November 29, 2010. Per the licensee's technical specifications, reactor protection system channel A trip unit 6 should have been in the tripped condition within 48 hours from time of discovering loss of operability. This is a reportable condition required by 10 CFR 50.73 (a)(2)(i)(B) as a condition prohibited by technical specifications. This was entered into the licensee's corrective action program as Condition Report 2011-2006.

The inspectors determined that the licensees' failure to submit a licensee event report within the required time was a performance deficiency. The licensee had the appropriate licensing basis information as well as the inspector's specific concerns regarding inadequate troubleshooting, potential preconditioning, inadequate maintenance, and operability concern; therefore the performance deficiency was within their ability to foresee and correct. The inspectors reviewed this issue in accordance with Inspection Manual Chapter 0612 and the NRC Enforcement Manual. Through this review, the inspectors determined that traditional enforcement was applicable to this issue because the NRC's regulatory ability was potentially affected. Specifically, the NRC relies on the licensee to identify and report conditions or events meeting the criteria specified in regulations in order to perform its regulatory function, and when this is not done the regulatory function is impacted, and is therefore a finding. The inspectors determined that this finding was not suitable for evaluation using the significance determination process, and as such, was evaluated for traditional enforcement only, in accordance with the NRC Enforcement Policy. This is a Severity Level IV noncited violation consistent with Sections 2.3.2 and 6.9.d of the NRC Enforcement Policy

Inspection Report# : 2011002 *(pdf)*

Significance: SL-IV Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Submit a Required Licensee Event Report
The inspectors identified a Severity Level IV noncited violation for the failure to submit a licensee event report within 60 days as required by 10 CFR 50.73. Specifically, the diesel fuel oil storage system was inoperable for approximately 24 hours from January 6, 2010, until January 7, 2010. On January 6, 2010, fuel oil transfer pump FO-37 was inoperable due to a fire main rupture submerging the pump for approximately 24 hours. With no other means to transfer fuel from storage tank FO-10 to FO-1, the fuel oil storage system was inoperable, and the fuel volume in FO-10 was unavailable. This was reportable condition required by 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by technical specifications. The licensee performed a reportability evaluation, and the violation was entered into the corrective action program as Condition Report 2010-3865.

The inspectors determined that the licensee's failure to submit a licensee event report was a performance deficiency. The inspectors reviewed this issue in accordance with NRC Inspection Manual Chapter 0612 and the NRC Enforcement Manual. Through this review, the inspectors determined that traditional enforcement was applicable to this issue because the NRC's regulatory ability was potentially affected. Specifically, the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in regulations in order to perform its regulatory function, and when this is not done the regulatory function is impacted, and is therefore more than minor. The inspectors determined that this finding was not suitable for evaluation using the significance determination process, and as such, was evaluated for traditional enforcement only in accordance with the NRC Enforcement Policy. This is a Severity Level IV violation as defined in Section 2.2.1.c of the NRC Enforcement Policy
Inspection Report# : 2010004 *(pdf)*

Significance: SL-IV Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Update the Updated Safety Analysis Report – Solid Waste
The inspectors identified a Severity Level IV, noncited violation of 10 CFR 50.71, "Maintenance of Records, Making of Reports," paragraph (e) which states, in part, "Each person licensed to operate a nuclear power reactor shall update periodically the final safety analysis report originally submitted as part of the application for the license, to assure that the information included in the report contains the latest information developed." Contrary to the above, the licensee failed to update periodically the Updated Safety Analysis Report originally submitted as part of the application for the license, to assure that the information included in the report contains the latest information developed. Specifically, since December 2006, the licensee stored a significant source of radioactivity in the original steam generator storage facility but failed to describe the source, volume, and storage of radioactive equipment in the Updated Safety Analysis Report. The licensee has entered this violation into their corrective action program as Condition Report 2010-3636.

The inspectors determined that the failure to update the Updated Safety Analysis Report as required by 10 CFR 50.71 (e), "Maintenance of Records, Making of Reports" was a performance deficiency. This finding was evaluated using traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. The finding was more than minor because it had a material impact on licensed activities in that a radioactive solid waste storage facility was relocated from the plant radiological controlled area to
the owner controlled area without being described in the Updated Safety Analysis Report. The finding was characterized as a Severity Level IV violation in accordance with Section 6.1.d.3 of the NRC Enforcement Policy
Inspection Report# : 2010004 *(pdf)*

Significance: SL-IV Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform a 10 CFR 50.59 Evaluation
The inspectors identified a Severity Level IV violation of 10 CFR 50.59 after the licensee failed to perform an adequate evaluation to demonstrate that prior NRC approval was not required before making changes to the facility as described in the Updated Safety Analysis Report. On April 9, 2010, the licensee changed the facility as described in the Updated Safety Analysis Report to install a cable splice in a safety related cable without determining if prior NRC approval was required. The licensee took actions to make the modification temporary until a permanent repair could be made and entered the issue into the corrective action program as Condition Report 2010-4466.

Fort Calhoun Station utilizes NEI 96-07 as their process to meet 10 CFR 50.59 requirements. Their failure to perform a 10 CFR 50.59 evaluation, in accordance with NEI 96 07, prior to changing the facility as described in the Updated Safety Analysis Report is a performance deficiency. The inspectors reviewed this issue in accordance with NRC Inspection Manual Chapter 0612 and the NRC Enforcement Manual. Through this review, the inspectors determined that traditional enforcement was applicable to this issue because the NRC's regulatory ability was potentially affected. Specifically, the NRC relies on licensees to identify and report conditions or events meeting the criteria specified in regulations in order to perform its regulatory function, and when this is not done the regulatory function is impacted, and is therefore more than minor. The inspectors determined that this finding was not suitable for evaluation using the significance determination process, and as such, was evaluated for Traditional Enforcement only in accordance with the NRC Enforcement Policy. The inspectors concluded that the 10 CFR 50.59 evaluation would have likely identified that prior NRC approval would have been required, unless the change to the facility was for a short duration of time. This was due to the introduction of additional potential failure mechanisms of the splices that are age-dependent. Since the licensee subsequently classified the cable splice as a temporary modification, and scheduled to be removed during the next refueling outage, the aging mechanisms would no longer be applicable. Therefore, this is a Severity Level IV violation as defined in Section 2.2.1.c of the NRC Enforcement Policy.
Inspection Report# : 2010004 *(pdf)*