

Fort Calhoun

2Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Internal Flooding Procedure

The inspectors identified a noncited violation of Technical Specification 5.8.1.a (Procedures) for an inadequate internal flooding procedure. Specifically, the licensee's abnormal operating procedures did not provide adequate instructions for operators to diagnose and mitigate the effects of an internal flood from a pipe break (e.g., fire main) on plant equipment. This violation was entered into the licensee's corrective action program as Condition Report 2007-0336.

This finding was greater than minor because it was associated with the procedure quality attribute of the initiating events cornerstone and affected the cornerstone objective to limit events that upset plant stability and challenge critical safety functions. The inspectors evaluated this finding using Manual Chapter 0609, Attachment 4, and determined that it was of very low safety significance because it did not increase the likelihood of a fire or internal/external flood. This finding did not have a crosscutting aspect because the performance deficiency was a long-standing issue and not necessarily indicative of current performance.

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Sep 30, 2007

Identified By: NRC

Item Type: FIN Finding

Ineffective Corrective Actions for Hydrazine Spills

A Green self-revealing finding was identified for inadequate corrective actions, which resulted in a hydrazine spill. Specifically, corrective actions taken previously were ineffective at preventing hydrazine spills, a condition that had the potential to injure personnel, prevent personnel response to events, or adversely affect mitigating systems equipment (e.g., Diesel Driven Auxiliary Feedwater Pump FW-54.) This issue has been entered into the licensee's corrective action program as CR 200703745.

The finding was greater than minor because hydrazine spills could be reasonably viewed as a precursor to a significant event. During a previous event, the licensee attempted to neutralize the spill which resulted in a violent exothermic reaction and a toxic gas release to the Turbine Building. The finding, which is under the Initiating Events cornerstone, was of very low safety significance because it (1) did not result in exceeding the Technical Specification limit for RCS leakage; (2) did not contribute to both the likelihood of a reactor trip and that mitigation equipment would be unavailable; and (3) did not increase the likelihood of a fire or flood.

Inspection Report# : [2007004](#) (*pdf*)

Significance:  Sep 14, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow a Procedure That Would Identify Potential Missile Hazards (Section 40A2.e(2)(a))

A noncited violation was identified for failure of operators to follow a procedure as required by Technical Specification 5.8.1.a. This failure resulted in the station not identifying that loose material had the potential to become airborne during high winds and potentially cause a loss of off-site power. This finding has a crosscutting aspect in the area of problem identification and resolution, specifically the corrective action program attribute (P.1(a)) in that the licensee failed to identify potential missile hazards despite numerous opportunities to do so.

This finding was determined to be greater than minor in that it affected the “Protection Against External Factors” attribute of the Initiating Events cornerstone. Further, this condition could also reasonably be viewed as a precursor to a significant event. The inspectors evaluated this finding using Manual Chapter 0609, Appendix A and determined that it was of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. This condition has been entered into the licensee’s corrective action program as Condition Reports 2007-3544 and 2007-3568.
Inspection Report# : [2007010](#) (*pdf*)

Significance:  Sep 14, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Definition of a Missile Hazard Results in Loss of 161 KV Power

A self-revealing noncited violation of Technical Specification 5.8.1.a occurred for an inadequate procedure that narrowly defined the definition of a missile. This inadequacy resulted in the loss of 161 kilovolt power to the safety-related busses on August 20, 2007 during a high wind event when debris not meeting the definition of a missile struck a transformer relay cabinet. This finding has a crosscutting aspect in the area of human performance, specifically the resources attribute (H.2C) in that the licensee failed to conservatively describe in procedures what constitutes a missile hazard.

This finding was determined to be greater than minor in that it affected the “Protection Against External Factors” attribute of the Initiating Events cornerstone. The inspectors evaluated this finding using Manual Chapter 0609, Appendix A. The initial screening determined a Phase 2 was required and since all safety-related equipment was operable and the safety-related busses remained energized, the Loss of Offsite Power Significance Determination Process worksheet was used to evaluate the risk. A “< 3 day” exposure results in an Initiating Event Likelihood of four for the Loss of Offsite Power Significance Determination Process worksheet. Evaluating all the sequences on the worksheet results in the lowest sequence being eight. This identifies that the significance of the finding was Green (very low safety significance) with respect to core damage frequency. This condition has been entered into the licensee’s corrective action program as Condition Report 2007-3361.

Inspection Report# : [2007010](#) (*pdf*)

Mitigating Systems

Significance:  Mar 31, 2008

Identified By: NRC

Item Type: FIN Finding

Failure to Identify Internal Flooding Deficiencies

The inspectors identified a finding for the licensee's failure to identify various deficiencies that would increase the severity of postulated internal flooding events in the auxiliary building. Specifically, the licensee did not recognize in-plant conditions that could result in the diversion of internal flood water to both emergency core cooling system pump rooms (e.g., fire main break). This finding has been entered into the licensee’s corrective action program as Condition Report 2008 0197.80

This finding was greater than minor because it was associated with the protection against external factors (floods) attribute and affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems (including flood barriers) that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency that was confirmed not to affect equipment operability; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non-Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the area of problem identification and resolution, specifically, the operating experience attribute [P.2 (b)] in that the licensee failed to internalize relevant internal flooding information from other licensees, which contributed to this

condition.

Inspection Report# : [2008002 \(pdf\)](#)

Significance:  Mar 31, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Prevent Raw Water Pump Packing Leakage

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Actions," for the failure to implement adequate corrective actions to prevent recurrence of a significant condition adverse to quality. Specifically, in 2007 raw water Pump AC-10D packing leakage was excessive. Operators had to secure the pump because water accumulation in the area could have challenged the operability of all the raw water pumps. Corrective measures were inadequate to prevent recurrence, in that the same event occurred on March 1, 2008. This violation has been entered into the licensee's corrective action program as Condition Report 2008-1196.

This finding was greater than minor because, if left uncorrected, the condition would become a more significant safety concern, in that raw water system operability could be adversely affected. The inspectors evaluated this finding using Manual Chapter 0609, Attachment 4. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non-Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the area of problem identification and resolution, corrective action program component, in that the licensee's evaluation of the first failure did not identify significant deficiencies that contributed to both failures [P.1(c)].

Inspection Report# : [2008002 \(pdf\)](#)

Significance:  Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Supply Suitable Materials for Diesel Generator Control Cabinets

The inspectors documented a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in response to a leak of diesel fuel oil into an enclosure containing electrical equipment. Specifically, the licensee failed to supply equipment suitable for the required application under existing environmental conditions. This violation has been entered into the licensee's corrective action program as Condition Report 2008-1082.

The finding was more than minor because it was associated with the availability/reliability of equipment performance 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. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it was a design deficiency confirmed not to result in a loss of operability or safety function. This finding did not have a crosscutting aspect because the performance deficiency was a long-standing issue and not necessarily indicative of current performance.

Inspection Report# : [2008002 \(pdf\)](#)

Significance:  Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify Multiple Conditions Adverse to Quality

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for the failure to ensure that conditions adverse to quality are promptly identified and corrected. Specifically, multiple boric acid leaks were identified in the plant where corrective actions had been ineffective, duration of leakage had approached two years time, and/or the leaks had not been tracked by the licensee's boric acid corrosion program or with a condition report. This violation was entered into the licensee's corrective action program as Condition Report 2008-1891.

The finding was more than minor because if it were left uncorrected the finding would become a more significant safety concern (i.e., potential for damage to carbon steel components or inhibiting the safety-function of others). Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Screening Worksheet, the issue screened as having very low safety significance because it: (1) was not a design or qualification deficiency; (2) did not represent a loss of safety function; (3) did not represent an actual loss of a single train of equipment for more than its Technical Specification allowed outage time; (4) did not represent a loss of risk significant non Technical Specification equipment; and (5) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding had a crosscutting aspect in the human performance area, work practices component [H.4(b)] in that the licensee failed to effectively communicate expectations on boric acid corrosion program procedures

Inspection Report# : [2008002](#) (pdf)

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Cold Weather Procedure

Green. A noncited violation of Technical Specification 5.8.1.c was identified for failure to have an adequate procedure to implement cold weather protective actions. Specifically, Procedure OI-EW-1, "Extreme Weather," Revision 13, did not provide adequate instructions for operators to mitigate the effects of cold weather on plant equipment. This failure resulted in the station not taking actions necessary to ensure availability of equipment prior to the onset of extremely cold weather. This finding has a crosscutting aspect in the area of Human Performance, specifically; the Resources attribute in that the licensee failed to have complete, accurate and up-to-date procedures (H.2.c).

This finding was determined to be greater than minor in that it affected the "Protection Against External Factors" attribute of the Initiating Events cornerstone. Further, this condition could also reasonably be viewed as a precursor to a significant event. The inspectors evaluated this finding using Manual Chapter 0609, Appendix A, and determined that it was of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. This violation was entered into the licensee's corrective action program as Condition Reports 2007-4931.

Inspection Report# : [2007005](#) (pdf)

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Take Appropriate Corrective Actions When Raw Water Performance Goals Were Not Met

Green. A noncited violation (NCV) of 10 CFR 50.65(a)(1) was identified for failure to implement corrective action to correct the condition causing unreliability of the raw water pumps and strainers. Specifically, the cause evaluation concluded that debris from the river (sand and pebbles) was getting into the intake and blocking the pump suction or overwhelming the strainer when an idle pump was started. A recommendation to periodically inspect and clean the area around raw water pumps was not carried forward in the (a)(1) improvement plan, and the other corrective actions did not correct this cause. Failure to implement this recommendation may have contributed to a repeat functional failure on April 29, 2007. This issue was entered into the licensee's corrective action program under CR 2007-5004.

This finding has a crosscutting aspect in Problem Identification and Resolution because the corrective actions did not fully address the identified causes (P.1.c).

Failure to implement timely preventive maintenance to monitor for and remove debris buildup near safety related raw water pumps in response to this system's unreliable performance and classification as Maintenance Rule (a)(1) was a performance deficiency. This finding is more than minor because the raw water system was already experiencing degraded performance, and if left uncorrected, would continue to experience degraded reliability. This finding is not suitable for evaluation using the Significance Determination Process because the performance deficiency did not cause the degraded equipment performance. This is a Category II finding per Inspection Procedure 71111.12, so it was determined to have very low safety significance (Green) by management judgment per Manual Chapter 0609, Appendix M.

Inspection Report# : [2007005](#) (pdf)

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control of Component Cooling Water Bypass Valve

Green. A noncited violation of Criterion III, "Design Control," was identified for not translating calculation results on controlling the position of HCV-497, Component Cooling Heat Exchangers AC-1A-D CCW Bypass Line Isolation Valve, into procedures to maintain the component cooling water system operational. The failure to control HCV-497 position had the potential of not meeting design basis requirements to mitigate an accident during warm river water temperatures.

The licensee's failure to translate calculation results into procedures constitutes a performance deficiency and finding. This finding is greater than minor because it could be reasonably viewed as a precursor to a significant event (i.e., the ability of the component cooling water system to mitigate an accident during periods of warm river temperatures). Additionally, the finding affected the availability and reliability of mitigating system equipment. This finding was evaluated using the significance determination process and was determined to be a finding of very low safety significance because the finding was: (1) not a qualification deficiency confirmed to result in a loss of function, (2) did not result in a loss of safety system function, (3) did not represent an actual loss of safety function of a single train, (4) did not represent an actual loss of safety function of risk significant equipment for greater than 24-hours, and (5) did not screen as risk significant due to external events. This condition has been entered into the licensee's corrective action program as Condition Report 2007-2864.

Inspection Report# : [2007005](#) (*pdf*)

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Translate Correct Setpoints Into Design Calculations

Green. A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control" was identified when the licensee failed to use the correct set points in design calculations. This error, when translated into plant equipment, affected both Emergency Diesel Generator-1 fuel oil transfer pumps and rendered one of them inoperable. This finding had a human performance crosscutting aspect associated with work practices because the failure to use human error prevention techniques, such as self-checking led to this condition (H.4(a)).

The finding is more than minor because it affects the "Design Control" attribute of the initiating events cornerstone objectives listed in Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B. Since the finding was a design deficiency confirmed not to result in a loss of operability, the violation has very low safety significance (Green), using Phase 1 of Manual Chapter 0609, "Significance Determination Process." This finding has a crosscutting aspect in the area of human performance because the licensee failed in their use of human error prevention techniques, such as self and peer checking. This caused the licensee to incorporate incorrect design basis information (i.e., breaker set points) into plant equipment. This violation was entered into the licensee's corrective action program as Condition Report 2007-4401.

Inspection Report# : [2007005](#) (*pdf*)

Significance:  Aug 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Emergency Diesel Generator Postmaintenance Test

A self-revealing Green non-cited violation of TS 5.8.1.a (Procedures) was identified for an inadequate postmaintenance testing procedure. Craftsmen had replaced the field flash relay auxiliary contacts (following a previous field flash failure on February 14, 2007) and had misaligned the contact assembly during installation. Postmaintenance testing was inadequate because it did not verify that the contacts properly repositioned to the closed position following the surveillance test. When the emergency diesel generator was started two days later, for a normal surveillance, the field did not flash because the contacts were stuck open.

This finding was greater than minor because the finding was associated with the mitigating systems cornerstone objective (procedure quality attribute) to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The exposure time for this performance deficiency was

approximately 60 hours. Using the Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," Phase 1 screening worksheet, the inspectors determined that the finding was of very low safety significance (Green) because it was not: 1) a design or qualification deficiency; 2) a loss of system safety function; 3) an actual loss of safety function for greater than its technical specification allowed outage time; 4) a loss of safety function of a non-technical specification train; or 5) a seismic, flooding or severe weather related finding. The finding had crosscutting aspects in the human performance area, specifically the resource attribute (H.2(c)) in that a complete and accurate test instruction was not provided to test the 2CR auxiliary relay contacts.
Inspection Report# : [2007011](#) (*pdf*)

W
Significance: Aug 31, 2007

Identified By: NRC

Item Type: VIO Violation

Inadequate Emergency Diesel Generator Corrective Measures

The inspectors identified an apparent violation of 10 CFR 50, Appendix B, Criterion XVI (Corrective Actions), with two examples, for the failure to: 1) treat the February 14, 2007 emergency diesel generator failure as a significant condition adverse to quality; and 2) promptly identify and correct a significant condition adverse to quality (high resistance on field flash circuit contacts) after determining that similar operating experience was applicable. In addition, a contributor to the inoperable emergency diesel generator included the failure to revisit the diesel generator operability evaluation in response to the applicable operating experience. Overall, the licensee responded to various problems in isolation and did not adopt a corrective action process that maintained emergency diesel generator reliability and availability.

These concerns were greater than minor because they affected the mitigating systems cornerstone objective (equipment performance attribute), to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. For the preliminary significance determination, the inspectors used a 14 day exposure time, which was ½ the time period between the last successful surveillance and the February 14, 2007 failure. However, this exposure time could increase to 28 days if the NRC determines the failure was caused by contact binding, versus contamination. Using the NRC Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," significance determination process, a Region IV senior reactor analyst determined that the finding was potentially Greater-than-Green. The finding had crosscutting aspects in the area of problem identification and resolution, operating experience component, in that the licensee failed to evaluate relevant operating experience in a timely manner.

Inspection Report# : [2007011](#) (*pdf*)

Inspection Report# : [2008006](#) (*pdf*)

W
Significance: Aug 31, 2007

Identified By: NRC

Item Type: VIO Violation

Failure to Provide Procedure for Safety Related Maintenance Activity

The inspectors identified an apparent violation of Technical Specification 5.8.1.a (Procedures) because craftsmen used an unapproved wet lubricant on the emergency diesel generator field flash relay auxiliary contact sliding mechanisms without a procedure that directed the action. The lubricant was the most likely contributor to oil and dust contamination on the auxiliary contact surfaces, which apparently caused the emergency diesel generator failure. In addition, a contributor to the violation included the failure to properly implement the Reliability Centered Maintenance Program.

This finding was greater than minor because it affected the mitigating systems cornerstone objective (procedure quality attribute), to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. For the preliminary significance determination, the inspectors used a 14 day exposure time, which was ½ the time period between the last successful surveillance and the February 14, 2007 failure. However, this exposure time could increase to 28 days if the NRC determines the failure was caused by contact binding, versus contamination. Using the NRC Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," significance determination process, a Region IV senior reactor analyst determined that the finding was potentially Greater-than-Green. The finding had crosscutting aspects in the area of human performance, resources component, in that the licensee failed to provide a procedure to control a safety related maintenance activity.
Inspection Report# : [2007011](#) (*pdf*)

G

Significance: Jul 25, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Abnormal Operating Procedure for loss of Component Cooling Water

The team identified a noncited violation of Fort Calhoun Technical Specification 5.8, "Procedures," for an inadequate Technical Specification required procedure. Specifically, Abnormal Operating Procedure 11, "Loss of Component Cooling Water," could not be performed as written for establishing backup raw water to the containment fan coolers during post-accident conditions with a loss-of-component cooling water. The licensee has entered this finding into their corrective action program as Condition Report 2007-02268.

The finding is greater than minor because it is associated with the barrier integrity cornerstone attribute for operating post event procedure quality. Using the significance determination process of Manual Chapter 0609, Appendix A, for the containment barrier cornerstone, the finding did not represent an actual open pathway in the physical integrity of reactor containment or involve an actual reduction of defense-in-depth for the atmospheric pressure control of the reactor containment. The finding had a cross-cutting aspect in the area of human performance resources because the licensee did not ensure that procedures to assure nuclear safety, in this case establishing backup raw water to the containment fan coolers during post-accident conditions with a loss-of-component cooling water, were complete, accurate and up-to-date.

Inspection Report# : [2007007](#) (pdf)

G

Significance: Jul 25, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Analyze Impact of Heat Loading in Safety Injection Pump Room from the Start of a Third High Head Safety Injection Pump

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, for the failure to perform a complete and adequate analysis of safety injection pump room temperatures to support operation of two high pressure safety injection pumps in one room during a design basis accident. The licensee performed the design calculation based on a limiting case with only one high pressure safety injection pump operating. However, at the operators discretion, the second high pressure safety injection pump could be started. The starting of the second high pressure safety injection pump in safety injection pump room 21 would increase the room temperature to near equipment qualification temperature limits. The licensee has entered this finding into their corrective action program as Condition Report 2007-02441.

This finding is more than minor because the engineering calculation results did not include the operation of a second high pressure safety injection pump running which would increase the temperature in pump Room 21 to near equipment qualification temperature limits. This unanalyzed condition now raised reasonable doubt on the operability of a system or component (Manual Chapter 0612, Appendix E.3.J). Using the Manual Chapter 0609, Phase 1 screening worksheet, the issue screened as having very low safety significance because it was a design deficiency confirmed not to result in loss of operability in accordance with NRC Manual Chapter Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment.

Inspection Report# : [2007007](#) (pdf)

G

Significance: Jul 25, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Translate Regulatory Requirements and Design Basis to Equipment Required to Support the Raw Water System - Unresolved Item 05000285/2005009-01

The team identified a non-cited violation of 10CFR Part 50, Appendix B, Criterion III, for the failure to translate the Fort Calhoun Station raw water strainer component's design basis into specifications, procedures, and instructions. The licensee had classified the raw water strainer components as non-safety related parts. The raw water strainers are equipment necessary to ensure that nuclear safety functions provided by Safety Class 1, 2, or 3 equipment (raw water system) are capable of accomplishing those functions. The licensee has entered this finding into their corrective action program as Condition Report 2007-3046.

This finding is more than minor because it affected the mitigating system cornerstone objective (design control attribute) to ensure the reliability and capability of the raw water system to mitigate initiating events such that the raw water strainer function was necessary and relied upon for ensuring the nuclear safety functions that are provided by Safety Class 1, 2, or 3 equipment. Using Manual Chapter 0609, Phase 1 screening worksheet, the issue screened as having very low safety significance because it was a design or qualification deficiency confirmed not to result in a loss of operability per Part 9900, Technical Guidance, "Operability Determination Process for Operability and Functional Assessment.

Inspection Report# : [2007007](#) (pdf)

Significance:  Jul 25, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Actions for the Turbine Driven Auxiliary Feedwater Keep Warm Line Bypass Throttle Valves MS-366 and -368

The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for failure to promptly identify and correct conditions adverse to quality. Specifically, between November 11, 2005, to April 28, 2006, during quarterly surveillance tests of the steam bypass warmup valves for the Turbine Driven Auxiliary Feedwater pump, the licensee noted degrading conditions (change in flow coefficient, Cv) of the bypass warmup valves. The degraded bypass warmup valves allowed the throttle valve differential pressure to fall below established acceptance criteria. During a postulated steam line break, the deteriorated bypass warmup valves could pass more steam than designed. Passing more steam than previously analyzed through a pipe break would not meet the licensee's commitment to maintain a mild environment to Room 19, where the auxiliary feedwater pumps are located, and, therefore would not ensure the operability of the safety-related equipment in the room. This issue was entered into the corrective action program as Condition Report 2007-2489.

The failure of allowing the turbine driven auxiliary feedwater pump bypass warmup valves to deteriorate to the point of allowing the throttle valve differential pressure to fall below established acceptance criteria, was a performance deficiency. This issue was more than minor because it affected the Mitigating Systems cornerstone objective of equipment reliability. The failure to ensure safety equipment performance is available and capable to respond to initiating events is a violation. Using the Manual Chapter 0609, Phase 1 screening worksheet, the issue screened as having very low safety significance, because it was a design deficiency in which there have been no actual loss-of-safety function, in accordance with NRC Manual Chapter Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment. The finding had a cross-cutting aspect in the area of human performance decision making (H.1.b). The licensee had opportunities to identify and correct the degraded bypass warmup valve when it caused the throttle valve differential pressure to fall below established acceptance criteria, but had not perform a thorough review of the concern.

Inspection Report# : [2007007](#) (pdf)

Significance:  Jul 25, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Meet Single Failure Criteria Configuration for Component Isolation Valves

The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to meet the single valve failure requirements for the component cooling water surge tank. The component cooling water surge tank water and nitrogen supply lines were credited with only a single check valve for meeting single failure criteria requirements. Based on engineering review, this configuration was not considered acceptable. Manual Isolation Valves AC-1179 and NG-290 have now been administratively changed in accordance with the Safety Analysis for Operability from the normally open position to the normally closed position to meet the single failure criteria requirements for the component cooling water Surge Tank AC-2. Upstream Check Valves AC-391 and NG-113 were previously credited with meeting the single failure criteria. This issue was entered into the corrective action program as Condition Report 2007-2622.

The failure to comply with ANSI 51.1, "Nuclear Safety Criteria for the Design of Pressurized Water Powerplants," with respect to single failure criteria (double isolation) for the demineralized water and Nitrogen makeup lines to the Component Cooling Water (CCW) surge tank is a performance deficiency. This finding is more than minor because it affected the mitigating system cornerstone objective (design control attribute) to ensure the reliability and capability

of the equipment needed to mitigate initiating events. Using the Phase 1 worksheet in Manual Chapter 0609, "Significance Determination Process," this finding is determined to be of every low safety significance because there was no actual loss of a safety function.
Inspection Report# : [2007007](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 20, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to accurately calibrate area radiation monitors

The team identified a noncited violation of 10 CFR 20.1501(b) for failure to ensure that area radiation monitors used for quantitative measurements were calibrated. Specifically, the licensee's area radiation monitors calibration procedure established an acceptance criteria based on ± 10 percent of the instrument scale and not based on the response to a radiation source traceable to the National Institute of Standards and Technology. This resulted in the area radiation monitors having a calibration acceptance criterion of ± 30 to 45 percent using a traceable radiation source. Hence, the licensee's practice of using an acceptance criterion of ± 10 percent of the scale resulted in uncalibrated area radiation monitors. The licensee determined that 5 out of 23 area radiation monitors were out of tolerance based on the corrected acceptance criteria in which they promptly calibrated the monitors to the industry standard. This issue was entered into the corrective action program as Condition Report 200803979.

The finding is greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Plant Facilities/Equipment and Instrumentation and affected the cornerstone objective in that the failure to properly calibrate the area radiation monitors could underestimate the extent of radiological hazards detected and cause unintentional dose to radiation workers. This finding was evaluated using the Occupational Radiation Safety significance determination process and determined to be of very low safety significance (Green) because it did not involve: (1) As Low As is Reasonably Achievable planning and controls; (2) an overexposure; (3) a substantial potential for overexposure; or (4) an impaired ability to assess dose. This finding had a cross-cutting aspect in the area of problem identification and resolution related to the component of operating experience because the licensee did not implement and institutionalize operating experience, including vendor recommendations, through changes to station processes and procedures to support plant safety [P.2(b)]

Inspection Report# : [2008008](#) (pdf)

Public Radiation Safety

Significance:  Jun 20, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to provide an accurate shipping manifest

The team reviewed a self-revealing, noncited violation of 10 CFR 20.2006(b) resulting from the licensee's failure to provide an accurate shipping manifest. On June 29, 2006, the licensee shipped used filters to a waste processor. The shipment included a total activity of only 10,200 millicuries with one of the packages containing four filters. However, the manifest papers accompanying the shipment only indicated a total activity of 10,000 millicuries with

three filters. The licensee was notified of the problem by the shipment recipient. The problem involving the incorrect manifest was documented in the corrective action program as Condition Reports 200602820 and 200803963.

The finding is greater than minor because it was associated with the Public Radiation Safety cornerstone attribute of Program and Process (transportation program), and affected the cornerstone objective in that it provided incorrect information as part of hazard communication which could increase public dose. Using the Public Radiation Safety significance determination process, the team determined the finding had very low safety significance because it involved transportation, but (1) radiation limits were not exceeded; (2) there was no breach of a package during transit; (3) it did not involve a certificate of compliance issue; (4) it was not a low level burial ground nonconformance; and (5) it did not involve a failure to make notifications or provide emergency informatio.

Inspection Report# : [2008008](#) (*pdf*)

Significance:  Jun 20, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to ship radioactive materials correctly

The team reviewed a self-revealing, noncited violation of 10 CFR 71.5 and 49 CFR 173.421(a)(2), which occurred when the licensee failed to ship radioactive material correctly. On December 8, 2006, the licensee was notified about a problem with a radioactive shipment that had been transported as an “excepted package-limited quantity.” The notification came from the recipient, who identified that the contact dose rate on the external surface of the packages exceeded the 0.5 millirem per hour limit allowed by regulation. The licensee determined the apparent cause was inadequate packaging and bracing of the load. The licensee revised its shipping procedure to require a peer check on bracing and shoring of package content and a second independent survey for excepted limited quantity packages. This issue was entered into the licensee’s corrective action program as Condition Report 200605883.

The finding is greater than minor because it was associated with the Public Radiation Safety cornerstone attribute of Plant Facilities/Equipment and Instrumentation (transportation packaging), and it affected the cornerstone objective because the failure to correctly ship radioactive material decreases the licensee’s assurance that the public will not receive unnecessary dose. This finding cannot be evaluated by the Public Radiation Safety significance determination process because it does not involve radioactive shipments classified as Schedules 5 through 11, as described in NUREG-1660, “U.S. Specific Schedules of Requirements for Transport of Specified Types of Radioactive Material Consignments,” and it does not fit traditional enforcement. Therefore, the finding was reviewed by NRC management using Inspection Manual Chapter 0609, Appendix M, and determined to be of very low safety significance because the package was not accessible by the public.

Inspection Report# : [2008008](#) (*pdf*)

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

Last modified : August 29, 2008