Fort Calhoun
3Q/2008 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Reactor Coolant System Leak During Plant Heat-up Due to Inadequate Valve Packing
A Green self-revealing noncited violation of Technical Specification 5.8.1.a (Procedures) was identified for an inadequate maintenance procedure. Specifically, the licensee's maintenance procedures did not provide adequate instructions for the craft to re-pack Pressurizer Spray Valve PCV-103-1 that resulted in a 2-3 gpm reactor coolant leak.

This finding was greater than minor because it was similar to 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. The inspectors evaluated this finding using Manual Chapter 0609, Attachment 4. The inspectors determined that it was of very low safety significance (Green) because, assuming worst case degradation, the finding would not result in exceeding the technical specification limit for any reactor coolant system leakage, nor would it have likely affected other mitigation systems resulting in a total loss of their safety function. This finding had a crosscutting aspect in Human Performance, specifically the Decision Making aspect [H.1.(b)] because licensee personnel failed to use conservative assumptions in decision-making. Specifically, the relevant procedure left the detail of repacking the valves to skill of the craft and licensee personnel failed to challenge or question whether that was appropriate.

Inspection Report# : 2008004 *(pdf)*

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Write an Adequate Suhtdown Procedure
A self-revealing noncited violation of Technical Specification 5.8.1.a was identified for the failure to have an adequate procedure for plant cooldown. Specifically, on June 10, 2008, the plant cooldown procedure allowed the control room staff to unexpectedly draw an approximately 2700-gallon steam void in the reactor coolant system. The procedure failed to provide guidance to ensure the reactor vessel head and steam generator u-tubes were sufficiently cooled down before depressurizing the reactor coolant system. Contributors to the event included: 1) the failure to institutionalize related operating experience from NRC Generic Letter 81-21, "Natural Circulation Cooldown," dated May 5, 1981; and 2) the failure of plant operators to implement related training intended to avoid void formation. After voids formed, operators recognized the void indications, raised system pressure to collapse the steam voids, and then cooled the vessel head and steam generator u-tubes before reducing system pressure again. The licensee entered the issue into their corrective action program as CR 2008-4131.

The failure to have an adequate cooldown procedure was more than minor because, if left uncorrected, it could become a more significant safety concern. Specifically, the same procedure would be used during natural circulation operations. Voiding in the steam generator u-tubes under these conditions could challenge the use of the steam generators as a heat sink. Using the NRC Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," and Attachment 1 to Appendix G, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for Both PWRs and BWRs," the inspectors determined that the finding was of very low risk significance because it did not: 1) result in non-compliance with low-temperature-over-pressure technical specifications; 2) increase the likelihood that a loss of decay heat removal would occur or affect the ability to recover decay heat removal; 3) increase the likelihood of a loss of reactor coolant system inventory or affect the ability to terminate a primary system leak; 4) increase the likelihood of a loss of offsite power or affect the ability to recover from a loss of offsite power; nor 5) affect containment integrity. Also, this finding had a cross-cutting aspect in the area of human performance related to the decision making component because control room personnel failed to use conservative assumptions when deciding to proceed with plant depressurization, considering the unusual circumstance of excessive residual heat in the steam generators and reactor vessel head (H.1(b)).

Inspection Report# : 2008003 *(pdf)*

Significance: G 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)*

Mitigating Systems

Significance: G Aug 15, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Untimely Corrective Actions for Degraded Fire Protection Water Supply System
The team identified a noncited violation of License Condition 2.D and the Quality Assurance Plan for failure to implement timely corrective actions to address a degraded fire water supply system. Despite determining that the system was degraded and taking compensatory actions to assure the system remained functional in 2006, the licensee failed to correct the condition prior to completing the next outage. Using the guidance of Regulatory Issue Summary 2005 20, Revision 1, "Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety," the team determined the corrective actions were untimely and subject to enforcement. The fire water supply system piping continued to degrade because of corrosion. The licensee documented this deficiency in Condition Report 200805319.

The failure to correct the degraded fire water supply system in a timely manner was a performance deficiency. This deficiency was more than minor because if left uncorrected the finding would become a more significant safety concern, as a result of ongoing corrosion. The team evaluated this deficiency using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." Because the fire water supply system met its design functions so long as both pumps and all pipe segments remained in service and the licensee established appropriate compensatory measures, the team assigned this finding a low degradation rating. As specified in Appendix F, Step 1.3, this finding had very low safety significance (Green). This finding has a crosscutting aspect in the area of human performance, specifically the resources attribute (H.2(a)), in that the licensee failed to promptly correct degraded fire water supply system and minimize the longstanding condition.

Inspection Report# : 2008009 *(pdf)*

Significance: G Aug 15, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Corrective Actions Related to Revising a Post-fire Safe Shutdown Procedure
The team identified a noncited violation of License Condition 2.D and the Quality Assurance Plan for failure to take adequate corrective action for a condition adverse to fire protection. Specifically, the licensee had included steps to open the breakers for the reactor coolant gas vent system valves in response to Noncited Violation 05000285/2005008 07; however, the licensee failed to identify, proceduralize and train operators to identify the instruments needed to implement this action. Spurious actuation of the valves because of fire damage could result in uncontrolled loss of reactor coolant inventory. The licensee documented this deficiency in Condition Report 200805325.

The failure to ensure that procedure steps instructed operators how to recognize the need to close spuriously opened reactor coolant gas system vent valves was a performance deficiency. This deficiency was more than minor in that it had the potential to affect the procedure quality attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to external events (fire). The team evaluated this deficiency using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." Because of the design of the vent system valves (i.e., three spurious actuations needed to exceed charging pump capability), the availability of reliable reactor coolant system pressure and pressurizer level indications in the control room, and the ability of operator to compensate for the deficiency because of their experience and training, the team assigned this finding a low degradation rating. As specified in Appendix F, Step 1.3, this finding had very low safety significance (Green). This finding has a crosscutting aspect in the area of human performance, specifically the resources attribute (H.2(c)), in that the licensee failed to ensure that operators had complete, accurate and up to date procedures providing sufficient guidance to correct spurious reactor coolant gas vent system valve operation.

Inspection Report# : 2008009 *(pdf)*

Significance: N/A Aug 11, 2008

Identified By: NRC
Item Type: FIN Finding
95002 Inspection Results
The U.S. Nuclear Regulatory Commission conducted this supplemental inspection to assess the licensee's individual and collective evaluation of a 2nd quarter 2007 mitigating systems cornerstone White finding, a 2nd quarter 2007 mitigating systems White NRC Performance Indicator, and a 3rd quarter 2007 mitigating systems White finding. These findings and performance indicator collectively placed the Fort Calhoun Station in the Degraded Cornerstone Column (Column 3) of the NRC's Action Matrix from the 2nd quarter 2007 through the end of the 1st quarter 2008. The 2nd quarter 2007 White performance indicator associated with the safety system functional failure performance indicator was White because station reporting a cumulative six safety system functional failures during the previous four quarters. This performance indicator returned to Green in the 3rd quarter 2007. The 2nd quarter 2007 White finding, documented in NRC Inspection Report 05000285/2006018, was associated with improper valve maintenance activities on a containment spray header isolation valve rendering the valve inoperable for an entire operating cycle. The 3rd quarter 2007 White finding, documented in NRC Inspection Report 05000285/2007011, was associated with inadequate maintenance and corrective actions for a relay and contact failure in the field flash circuit of an emergency diesel generator rendering Emergency Diesel Generator 1 inoperable on two separate occasions.

The NRC inspection team concluded that the licensee adequately evaluated the White finding associated with the containment spray header isolation valve maintenance, identified the root and contributing causes, implemented effective interim corrective actions and long term corrective actions to prevent recurrence, defined the extent of condition appropriately, and planned effective long term actions to address the extent of causes. As a result, this White finding and associated Notice of Violation 05000285/2006018-01, "Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions Procedures, and Drawings"," is closed. Additionally, the team determined that the licensee adequately assessed the individual and collective aspects and contributors to the safety system functional failure performance indicator and identified appropriate actions as discussed in the inspection report. In addition, the team concluded that the licensee's evaluation of the inadequate corrective actions aspect of the Emergency Diesel Generator 1 relay maintenance White finding to be adequate and that acceptable interim and long term corrective actions were in place to assure that future significant conditions adverse to quality would be appropriately identified and evaluated in the licensee's corrective action program. As a result, Notice of Violation 05000285/2007011-02, "Inadequate Emergency Diesel Generator Corrective Measures," is closed.

However, the team determined that, although the licensee's evaluation of the Emergency Diesel Generator 1 relay failure identified the root and contributing causes, developed adequate corrective actions, and included plans to prevent recurrence of the failure of the emergency diesel generators, it failed to adequately assess the extent of condition. The licensee's assessment of extent of condition for the Emergency Diesel Generator 1 relay contact failure due to inappropriate lubrication was narrow and untimely. Specifically, the initial extent of condition scope was focused on the same relay type as the one that failed in the Emergency Diesel Generator 1 circuit, even though inappropriate lubrication was applied to other relay types. This narrow evaluation of the lubrication issues resulted in the licensee initially identifying only a population of five relays in components other than the emergency diesel generators. The licensee recognized that the extent of condition was narrow in February 2008, prior to this inspection, and expanded the scope to include other FID-1 relays that may have been inappropriately lubricated. However, the team concluded that the licensee's extent of condition was still too narrow in that the licensee failed to address the potential for sticking or binding of auxiliary contact actuators as a failure mechanism. Therefore, they failed to include safety-related FID-2 relays in the list of components to be evaluated and/or tested to assure their ability to perform their safety function. Additionally, the licensee's corrective actions to address the expanded extent of condition of lower risk significant relays were potentially untimely given that the licensee's actions depended on a preventative maintenance schedule over four operating cycles, approximately 6 years, to address the potential common cause failure mechanism of inappropriate application of lubricants. Assessing the operability status of all relays in a timely manner was important, given the common mode failure mechanism and the potential for multiple components, trains, or system functional failures during an event response.

During the inspection, Fort Calhoun Station entered a forced outage. Due to the team's questioning of the extent of condition, the licensee identified a population of 39 relays to be inspected during the forced outage. This inspection resulted in four relays not meeting acceptance criteria for contact resistance. The licensee determined that two of those relays needed further assessment and were tagged out of service in their safety position. This assessment is pending the shutdown of the facility to allow for as found testing of the components and is the subject of an unresolved item. The team also noted that, at the time of the inspection, the licensee was still making refinements to the overall preventative maintenance strategy to implement adequate maintenance on relays and contactors. Therefore, it was not clear that the licensee had a fully developed preventative maintenance plan that would assure that all of the correct maintenance would be implemented.

Consequently, the White finding associated with Notice of Violation 05000285/2007011-03 will remain open pending a future inspection per NRC Inspection Procedure 95002 to verify that: (1) the extent of condition of inadequately maintained relays and contacts is appropriately assessed with regards to contactor binding; (2) adequate corrective actions are identified and implemented; and (3) the preventive maintenance and postmaintenance testing of risk-significant components and subcomponents, such as electrical relays and contactors, are properly evaluated and addressed.

The team determined that the licensee's common cause analysis of the individual issues was adequate and correctly identified underlying safety culture aspects which contributed to the events. As a result of the analysis, the licensee identified five focus areas, developed associated action plans, and implemented interim actions to help improve overall future plant performance. The licensee's focus areas consisted of Human Performance, Equipment Reliability, Latent Engineering Issues, Problem Identification and Resolution, and Safety Culture.

Inspection Report# : 2008006 *(pdf)*

Significance: G Jun 30, 2008

Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Boric Acid Corrosion Control Procedure
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” having very low safety significance for the licensee’s failure to maintain an adequate Boric Acid Corrosion Control Procedure. Specifically, the procedure failed to include requirements identified in their boric acid program basis document, did not provide clear guidance for implementation, and failed to specify systems and components required to be inspected. The licensee has entered this finding into their corrective action program as Condition Report 2008-3014.

The finding was more than minor because if left uncorrected the finding would become a more significant safety concern due to the corrosive effects of boric acid on carbon steel systems and components. The team identified that the finding screened as very low safety significance (Green) since it did not result in a loss of operability, loss of system safety function, or actual loss of safety function of a single train for greater than its Technical Specification allowed outage time. The finding was also found not to result in an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk significant per 10 CFR 50.65 for greater than twenty-four hours, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The cause of the finding was related to the crosscutting component of decision making (H.1(a)) associated with roles defined since the manner in which the program was created allowed for confusion, in regards to formally defining authority and roles for decisions affecting nuclear safety and communicating these roles to applicable personnel for implementation of boric acid inspection activities.

Inspection Report# : 2008003 *(pdf)*

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: G 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: G 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: G 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: G 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: G 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: G 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)*

Barrier Integrity

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Corrective Actions for a Containment Spray Design Deficiency
The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure to

promptly implement corrective actions for a condition adverse to quality. Specifically, in 1990 the licensee identified that containment spray pumps may runout, and possibly fail, under certain conditions. For example, if one containment spray pump failed for mechanical reasons (such as a shaft failure) the remaining pump would be subjected to runout conditions. Corrective measures were inadequate, in that the potential failure mode continued to exist from 1990 until identified by the inspectors in 2008.

This finding was greater than minor because it was similar to non-minor example 3.j in NRC Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that there was a reasonable doubt concerning the operability of the containment spray system, assuming a worst case single failure. Using the NRC Manual Chapter 0609, Phase 1 worksheet, "Initial Screening and Characterization of Findings," the finding screened as having very low safety significance because it did not: 1) represent a degradation of the radiological barrier for the control room, auxiliary building, or spent fuel pool; 2) represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere; 3) represent an actual open pathway in the containment; and 4) involve a degradation of the hydrogen ignitor function. This violation was entered in the licensee's Corrective Action Program as CR 2008-1683. 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# : 2008003 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Conspicuously Post a Radiation Area
The inspectors identified a noncited violation of 10 CFR 20.1902(a) because the licensee failed to post radiation areas in the radwaste building with a conspicuous sign or signs bearing the radiation symbol and the words "Caution, Radiation Area." The licensee posted the radiation area signs only at the entrances to the building instead of at the discrete radiation areas even though the majority of the building was not a radiation area. Dose rates in unposted areas were as high as 14 millirem per hour. Immediate corrective actions included posting the discrete areas as radiation areas. This violation was entered into the corrective action program as Condition Report 2008-2949 and additional corrective actions are still being evaluated by the licensee.

The failure to post a radiation area is a performance deficiency. The finding was greater than minor because it was associated with the cornerstone attribute (exposure control) and the finding affected the Occupational Radiation Safety cornerstone objective, in that, uninformed workers could unknowingly accrue additional radiation dose. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined that the finding was of very low safety significance 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 does not have a crosscutting aspect because of the age of the performance deficiency.

Inspection Report# : 2008003 *(pdf)*

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Procedures
The inspectors identified a noncited violation of Technical Specification 5.8.1.a which resulted from a worker failing to follow procedural requirements. Specifically, on March 18, 2008, the radiation protection count room technician failed to properly document a personnel contamination event. As immediate corrective action, the licensee completed the skin dose calculation and documented the occurrence in the corrective action program as Condition Report 2008-2904.

The failure to properly document skin contamination is a performance deficiency. This finding is greater than minor because if left uncorrected the finding would become a more significant safety concern, in that the failure to properly document skin contamination events could result in an individual exceeding the shallow dose exposure limit. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had very low significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. Additionally, the finding had a crosscutting aspect in the area of human performance, work practice component [H.4.a], because the workers did not use self- or peer- checking as a human error prevention technique to ensure proper documentation and calculation of skin dose.

Inspection Report# : 2008003 *(pdf)*

Significance: G 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: G 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: G 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 : November 26, 2008