Fort Calhoun
2Q/2007 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2007
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Loss of Shut Down Cooling Due to Inadequate Procedure
A Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, occurred when operating procedure OP-3A, “Plant Shutdown,” Revision 66, did not contain appropriate guidance to licensed operators to prevent the loss of shutdown cooling when reactor coolant pumps were secured. The procedure did not provide a caution statement, similar to one found in other procedures that would have alerted the operators that reduced spray flow exists when running less than four reactor coolant pumps.

This finding was determined to be greater than minor in that it affected the "Procedure Quality" attribute of the Initiating Events cornerstone. The inspectors attempted to evaluate this finding using Manual Chapter 0609, Appendix G, because the condition occurred during cold shutdown conditions. The reactor had been shut down for 79 days and one third of the fuel was replaced with new fuel bundles. The time to boil was three hours, therefore none of the checklists were applicable. Using Checklist 2 as a bounding evaluation, resulted in a Green finding. Since the finding was not suitable for analysis under the significance determination process, regional management and a Senior Reactor Analyst review determined that the finding was of very low safety significance (Green) because there was no affect on the reactor coolant system and no radionuclide release. This finding has been entered into the licensee’s corrective action program as Condition Report 200605629. This finding has a crosscutting aspect in the area of human performance associated with resources because procedure OP-3A, "Plant Shutdown, Revision 66" did not contain complete accurate and up to date information for the control of pressurizer spray while transiting to shutdown cooling.
Inspection Report# : 2007002 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Translate Replacement Pressurizer Weight Into Design Calculations
The inspectors identified a Green, noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for failure to use the correct total dead weight of the replacement pressurizer in two design calculations.

The failure to correctly translate the total dead weight of the replacement pressurizer into design calculations is a performance deficiency because the licensee failed to meet 10 CFR Part 50, Appendix B, Criterion III, "Design Control," and the cause was reasonably within the licensee’s ability to foresee and correct. The finding is more than minor because it affects the design control attribute of the initiating events objective listed in Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B. Because the incorrect weight was used in the analyses, the analyses were re-evaluated. Since the finding did not result in a loss of function or mitigation capability, the violation has very low safety significance (Green), using Manual Chapter 0609, "Significance Determination Process."

This finding has a crosscutting aspect in the area of human performance because the licensee failed to use conservative assumptions in their decision- making. This caused the licensee to miss opportunities to revise specific design documentation for the pressurizer. A contributing factor is the licensee’s regard toward the replacement pressurizer as a "like-for-like" replacement for the original pressurizer. Although the design function of the replacement pressurizer is similar to the original pressurizer, specific design parameters, such as weight, volume, and heater capacity, are actually different.
Inspection Report# : 2006004 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Identify and Correct an Inoperable component Cooling Water flow Element
A Green self-revealing noncited violation was identified for the licensee's failure to promptly identify and correct a repetitively inoperable component cooling flow element. The initial failure occurred in 1999 and had failed three times within the past two years. The failure to recognize and fix this condition led to the flow element repeatedly being out of service and unable to perform its function during a potential design basis accident.

This finding was determined to be greater than minor because the condition had an impact on availability/reliability of the component and thus affected the "Equipment Performance" attribute under the Mitigating Systems cornerstone. The inspectors evaluated this finding using Manual Chapter 0609, Appendix A, and determined that it was of very low safety significance (Green). This conclusion was reached because the finding was not a design or qualification deficiency, the finding did not represent a loss of safety function, was not an actual loss of safety function of a single train for greater than its Technical Specification Allowed Outage time, did not represent an actual loss of safety function for non-Technical Specification equipment, and was not potentially significant due to external events such as flooding, seismic occurrences, etc. This violation was entered into the licensee's corrective action program as Condition Report 200605986. This finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action because the licensee failed to identify and correct the condition despite numerous opportunities to do so. This crosscutting aspect is indicative of current performance because the most recent failure of the flow element occurred in December 2006.
Inspection Report# : 2007002 *(pdf)*

Significance: G Dec 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Identify and Correct a Degraded Component Cooling Water Pump
The inspectors identified a Green NCV for the licensee's failure to promptly identify and correct a degraded component cooling water pump. The failure to recognize and fix this condition led to the pump being more likely to fail upon a valid demand to start.

This finding was determined to be greater than minor because it affected the "Availability/Reliability" component of the "Equipment Performance" attribute under Mitigating Systems cornerstone. The inspectors evaluated this finding using Manual Chapter 0609, Appendix A, and determined that it was of very low safety significance (Green). This conclusion was reached because the finding wasn't a design or qualification deficiency, the finding did not represent a loss of safety function, was not an actual loss of safety function of a single train for greater than its Technical Specification Allowed Outage time, did not represent an actual loss of safety function for non-Technical Specification equipment, and was not potentially significant due to external events such as flooding, seismic occurrences, etc. This violation was entered into the licensee's corrective action program as Condition Report (CR) 200603835. This finding has a crosscutting aspect in the area of problem identification and resolution because the licensee failed to identify and correct the condition despite numerous opportunities to do so.
Inspection Report# : 2006005 *(pdf)*

Significance: G Dec 31, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Inadvertent Pump Down of Intake Bay Resulting in Less Than Required Raw Water Pumps
A Green finding was identified for failure of operators to follow a standing operational procedure as required by Technical Specification 5.8.1.a. This failure resulted in less than the minimum number of raw water pumps required for decay heat removal from the spent fuel pool.

This finding was determined to be greater than minor in that it affected the "Configuration Control" component of the

Mitigating Systems cornerstone, specifically “Shutdown Equipment Alignment.” The inspectors attempted to use Manual Chapter 0609, Appendix G because the condition occurred during shutdown conditions, but were unable to because an assumption contained in the worksheets was that fuel was in the reactor vessel. During this transient all fuel was located in the spent fuel pool. Regional management determined that the finding was of very low safety significance (Green). The finding was evaluated considering Manual Chapter 0609, Appendix G, as a bounding case and was used as guidance to determine the significance of the finding. This violation was entered into the licensee’s corrective action program as CR 200604505. This finding has a crosscutting aspect in the area of human performance associated with work practices because the operator failed to use error prevention techniques like self-checking and peer checking, which would have prevented this event.
Inspection Report# : 2006005 *(pdf)*

Significance: G Dec 31, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Inadvertent Over-Pressurization of Piping During Testing
A Green finding was identified for failure to follow procedures during testing. This condition resulted in the damage to safety-related equipment and potential over-pressurization of chemical and volume control system (CVCS) and high pressure safety injection (HPSI) piping.

This finding was determined to be greater than minor in that it affected the “Configuration Control” attribute of the Mitigating Systems cornerstone. The inspectors evaluated this finding using Manual Chapter 0609, Appendix G, because the condition occurred during shutdown conditions. Using Checklist 2 the inspectors determined that the finding screened as Green because the condition did not increase the likelihood that a loss of decay heat removal would occur. This violation was entered into the licensee’s corrective action program as CR 200605430. This finding has a crosscutting aspect in the area of human performance associated with work practices because the operator failed to use error prevention techniques like self-checking and peer checking, which would have prevented this event.
Inspection Report# : 2006005 *(pdf)*

Significance: W Dec 21, 2006
Identified By: NRC
Item Type: VIO Violation
Containment Spray Train ‘B’ Inoperable in Excess of Technical Specifications due to Failure to Perform Adequate Maintenance and Testing
A violation of 10 CFR Part 50, Appendix B, Criterion V, was identified for the OPPD’s failure to perform adequate maintenance and testing on containment spray header isolation Valve HCV-345. This issue was self revealed on September 13, 2006, when reactor coolant water issued from the containment spray headers indicating that either Valve HCV-344 or Valve HCV-345 was not properly seated. The failure to perform adequate maintenance and testing for this component resulted in one train of containment spray being inoperable from May 11, 2005 to September 9, 2006, a period of 454-days. This exceeded Technical Specification 2.4(2) allowed outage time of 24 hours when the reactor is critical.

The issue was more than minor because it affected the equipment performance attribute of the Mitigating System Cornerstone due to the impact on availability and reliability of the containment spray system. The finding was characterized under the significance determination process as having low to moderate safety significance because one train of containment spray was unavailable to respond to a loss-of-coolant accident and would have been unable to perform its mitigating system function. This condition was entered into the OPPD’s corrective action program as Condition Report 200604627. The finding has a crosscutting aspect in the area of human performance, specifically resources, in that complete and accurate procedures and work packages were not provided.
Inspection Report# : 2006018 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain Shutdown Cooling Train Operable as Required by Technical Specification 2.1.1(3)
A noncited violation was identified for failure to comply with Technical Specification 2.1.1.(3), which required two

operable decay heat removal loops. This failure resulted in a condition where only one shutdown cooling train was operable. This condition existed for 2 days before being detected by operations personnel.

This finding was determined to be greater than minor in that it affected the "Configuration Control" attribute of the Mitigating Systems cornerstone. The inspectors evaluated this finding using Manual Chapter 0609, Appendix G, because the condition occurred and was identified during shutdown conditions. Using Checklist 2, the inspectors determined that the finding screened as Green because the condition did not increase the likelihood that a loss of decay heat removal would occur due to failure of the system itself. This condition was entered into the licensee's corrective action program as Condition Report 200603965. This finding has a crosscutting aspect in the area of human performance associated with decision making because operations personnel incorrectly concluded that the shutdown cooling header was operable.
Inspection Report# : 2006004 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement readonable and Feasible Manual Actions
The inspectors identified a noncited violation of Technical Specification 5.8.1.c for failure to have an adequate procedure to implement postfire safe shutdown actions. Specifically, Procedure SO-G-28, "Station Fire Plan," Revision 61, Attachment 14, failed to list operable diagnostic instrumentation, actions needed to respond to faults on 4 kV busses, and had operators re-enter an area without ensuring it was safe to enter.

This finding is of greater than minor safety significance because it had the potential to impact the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to external events (such as fire) to prevent undesirable consequences. Consequently, the inspectors evaluated these deficiencies using Manual Chapter 0609, Appendix F. Since the issue involved postfire safe shutdown actions in the auxiliary building related to maintaining reactor coolant system inventory and maintaining a heat sink, had existed for more than 30 days, and had a moderate degradation rating, the issue did not screen out in Phase 1. Because of the room volumes and the forced ventilation flow rates, the sources did not generate sufficient heat in the hot gas layer to damage the targets. Consequently, in accordance with the Appendix F, Step 2.3, of the Phase 2 significance determination process, the inspectors concluded that this finding was of very low safety significance. In addition, this finding had a crosscutting aspect in the area of human performance because the licensee did not ensure complete, accurate and up-to-date procedures needed to implement manual actions existed for postfire safe shutdown.
Inspection Report# : 2006004 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Alternate Shurdown Procedure
The inspectors identified a noncited violation of Technical Specification 5.8.1.c for failure to have an adequate procedure to implement postfire safe shutdown actions. Specifically, simulated operator actions during a walkthrough of Procedure AOP-06, "Fire Emergency," could not be performed in the time specified in engineering calculations, nor were all appropriate steps specified.

This finding is of greater than minor safety significance because it had the potential to impact the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to external events (such as fire) to prevent undesirable consequences. Specifically, the issue involved postfire safe shutdown actions in the auxiliary building upon evacuation from the control room related to maintaining a heat sink. Because of other actions that would likely have been taken, the inspectors concluded this issue had a low degradation rating and, therefore, the inspectors concluded the issue was of very low safety significance in Phase 1. In addition, this finding had a crosscutting aspect in the area of human performance because the licensee did not ensure complete, accurate and up-to-date procedures needed to implement the actions existed.
Inspection Report# : 2006004 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Determine Operability of Component Cooling Water Valves to Containment Cooling Units
The inspectors identified a noncited violation of Technical Specification 2.4. The violation was identified as a result of the licensee's failure to identify corrective actions two years ago that caused the Licensee to incorrectly determine the operability of component cooling water (CCW) inlet and outlet valves that supply CCW to the containment air cooling and containment air cooling and filtering units. On two occasions, June 29, 2006 and July 18, 2006, the licensee initially determined that air or nitrogen leaks associated with the CCW valves did not affect the operability of the valves. This incorrect operability determination was based on the valves failing-as-is and not being subject to flow-induced hydrodynamic operation. Because the valves are subject to flow-induced hydrodynamic operation caused the violation of technical specification.

The finding was more than minor since it affected the Containment Configuration Control attribute of the Barrier Integrity cornerstone. Using Significance Determination Process, Manual Chapter 0609, the phase one analysis directs the use of Appendix H since the finding involves the actual reduction in defense-in-depth for the atmospheric pressure control. Manual Chapter 0609 Appendix H characterized the finding as having a very low safety significance because it was determined to have no impact on core damage frequency or large early release frequency. The finding also has a crosscutting aspect in the problem identification and resolution area because the licensee failed to take appropriate corrective actions to address the safety issue in a timely manner. This issue was entered into the licensee's corrective action program.
Inspection Report# : 2006005 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Mar 31, 2007
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Obtain a High Radiation Area Access Authorizations and Associated Radiological Briefing
The inspectors reviewed two examples of a self-revealing, noncited violation of Technical Specification 5.11.1 in which workers failed to obtain high radiation area radiological briefing before entering the area. The first example occurred on October 25, 2006, when a worker received an electronic alarming dosimeter dose alarm while performing duties as a fire watch on one of the steam generator platforms, which was posted as a high radiation area. The second example occurred on October 29, 2006, when a worker received an electronic alarming dosimeter dose alarm while pulling electrical cable inside the bioshield, which was posted as a high radiation area. For both issues, the licensee restricted access to the radiologically controlled area pending discussion with the individuals and their supervisors. This issue was also included as preshift briefings and management meetings to heighten the awareness of changing radiological conditions and for workers to be more mindful of the radiation work permit requirements.

This finding is greater than minor because it is associated with one of the cornerstone attributes, exposure/contamination control, and affects the Occupational Radiation Safety cornerstone objective in that the failure to obtain high radiation area access authorization and the associated radiological briefings could have resulted in additional personnel exposure. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined that this finding was of very low safety significance because it did not involve: (1) an as low as reasonably achievable planning or work control issue; (2) an overexposure; (3) a substantial potential for overexposure; or (4) an impaired ability to assess dose. This finding also has a crosscutting aspect in the area of

human performance work control because neither the individuals nor their supervisors appropriately coordinated work activities and evaluated the impact of changes to work assignments. These issues have been entered into the licensee's corrective action program as Condition Report 200604937 and Condition Report 200605033.
Inspection Report# : 2007002 *(pdf)*

Significance: G Nov 17, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Obtain High Radiation Area Briefing
The inspector identified a self-revealing, noncited violation of Technical Specification 5.11.1, in which a worker failed to obtain a high radiation area access authorization and associated radiological briefing prior to entering the posted area. Specifically, on October 24, 2006, a worker entered the containment building on a radiation work permit (RWP) for rigging and equipment moves. This assignment did not require entry into a posted high radiation area (HRA). After entering the containment building and beginning work, the individual's foreman reassigned the person to a job in a posted HRA. The individual did not change RWPs and did not receive the HRA briefing prior to starting work in the new area. This issue was entered into the licensee's corrective action program.

This finding is greater than minor because it is associated with one of the cornerstone attributes (exposure/contamination control) and affects the Occupational Radiation Safety cornerstone objective, in that the failure to obtain authorization for entry into the posted high radiation area and the radiological briefing could result in additional personnel exposure. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined that this finding was of very low safety significance because it did not involve: (1) an as low as is reasonably achievable, (ALARA) finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess doses. Additionally, this finding has a cross-cutting aspect in the area of human performance work control because the foreman failed to appropriately coordinate work activities and evaluate the impact of changes to work assignments.
Inspection Report# : 2006005 *(pdf)*

Significance: G Nov 17, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Wear Appropriate Alarming Dosimetry
The inspector identified a self-revealing, noncited violation of Technical Specification 5.11.1.b, in which a contractor's ALARA Coordinator failed to wear an alarming device that could be heard while working in a High Radiation Area. Specifically, on October 24, 2006, the individual inadvertently signed in on a Radiation Work Permit task that was suspended, and entered a High Radiation Area inside the containment building. The access control computer automatically set the dosimeter alarms for suspended tasks at 1 mrem for dose and 1 mrem/hr for dose rate. When the individual entered the High Radiation Area with high background noise levels, the individual was unable to hear the dosimeter alarm after it accumulated 1 mrem integrated dose. The individual worked in the area for a total of 1.7 hours. Upon exiting, the individual noticed the dosimeter was alarming and had accumulated a total dose of 6 mrem. This issue was entered into the licensee's corrective action program.

This finding is greater than minor because it is associated with one of the cornerstone attributes (exposure/contamination control) and affects the Occupational Radiation Safety cornerstone objective, in that the failure to provide adequate alarming dosimetry resulted in additional personnel exposure. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined that this finding was of very low safety significance because it did not involve: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess doses. Additionally, this finding has a cross-cutting aspect in the area of human performance work practices because the worker failed to use error prevention tools such as self and peer checking.
Inspection Report# : 2006005 *(pdf)*

Significance: G Nov 17, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation

Failure to Provide Adequate Instructions
The inspector identified a self-revealing, noncited violation of Technical Specification 5.8.1.a, in which instructions for the use of a high-efficiency particulate air (HEPA) filtration units were not adequately incorporated into RWP instructions resulting in the contamination of three workers. Specifically, on September 28, 2006, three individuals received intakes of radioactive material while cutting instrument lines from the bottom of the pressurizer. The work area was set up using scaffolding with a small work platform to access the bottom of the pressurizer and an HEPA ventilation unit in place on the floor below the work platform with ductwork extending to the work platform. The workers were given a briefing on dosimetry, dress requirements, and dose rates just prior to the start of the job; however, neither the briefing nor the RWP addressed the proper placement of the HEPA hose during the cutting evolution. Consequently, the three workers were assigned doses of 60, 75, and 86 millirems committed effective dose equivalent respectively. This issue was entered into the licensee's corrective action program.

This finding is greater than minor because it is associated with one of the cornerstone attributes (exposure/contamination control) and affects the Occupational Radiation Safety cornerstone objective, in that the failure to incorporate adequate work instructions in the radiation work permit resulted in additional personnel exposure. Using the Occupational Radiation Safety Significance Determination Process, the inspector determined that this finding was of very low safety significance because it did not involve: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess doses. Additionally, this finding has a cross-cutting aspect in the area of human performance resources because the licensee failed to provide complete and accurate work instructions in the RWP.
Inspection Report# : 2006005 *(pdf)*

Significance:  Sep 30, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Optain High Radiation Area Access Authorization and an Associated Radiological Briefing
The inspectors reviewed two examples of a self-revealing, noncited violation of Technical Specification 5.11.1 in which workers failed to obtain high radiation area access authorization and associated radiological briefing before entering the area. The first example occurred on March 26, 2005, when a worker received a dose rate alarm while assisting with the movement of an equipment cutter known to generate a high radiation area. The second example occurred on September 16, 2006, when a worker received two dose rate alarms while working on two fire detectors in the overhead. The worker passed through a high radiation area while performing work on the second fire detector. For the first example, the licensee enhanced pre-job briefings to verify appropriate authorizations and briefings via self and peer checking. For the second example, corrective actions are still being implemented.

This finding is greater than minor because it is associated with one of the cornerstone attributes (exposure/contamination control) and affects the Occupational Radiation Safety cornerstone objective, in that the failure to obtain high radiation area authorized access and associated radiological briefings resulted in additional personnel exposure. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined that this finding was of very low safety significance because it did not involve: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess doses. Additionally, this finding had a cross-cutting aspect in the area of human performance because the workers failed to use error prevention tools such as self and peer checking.
Inspection Report# : 2006004 *(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

Last modified : August 24, 2007