Palisades
2Q/2007 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2007
Identified By: Self-Revealing
Item Type: FIN Finding
Reactor Trip Caused by Human Performance Error
A self-revealing finding was identified for the licensee's failure to follow work order instructions when performing maintenance on a main feedwater regulating valve position indicator. As a result, an automatic reactor trip occurred on a Reactor Protection System (RPS) actuation for steam generator low feedwater level. The licensee performed a cause analysis for the event and entered the event into their corrective action program.

The finding was more than minor because the failure to follow instructions caused an actual transient (i.e., reactor trip). This finding did not constitute a violation of NRC requirements and is considered very low safety significance (Green) since there was no impact on safety-related equipment or mitigation function and availability. The finding also has a cross-cutting aspect in the area of human performance, because the licensee failed to use adequate human error prevention techniques. (H.4(a))
Inspection Report# : 2007004 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Reduction in Fast Bus Transfer Capability
The inspectors identified a finding having very low significance and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." Specifically, the licensee failed to evaluate the potentially adverse effects that a modification to add an automatic load tap changer to the startup transformer would have on the independence of the two circuits from the offsite power supply to the Class 1E Buses required by technical specifications and on the fast transfer capabilities described in the final safety analysis report. Following discovery, the licensee performed preliminary calculations to assess the issue.

This issue was more than minor based on review of IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," because the failure to perform a calculation resulted in a modification to the plant which was not in accordance with the design basis and the modification required revision to ensure the design basis was met. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.2)
Inspection Report# : 2006009 *(pdf)*

Mitigating Systems

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to preclude Water Hammer in HPSI Injection Piping
The inspectors identified a Green NCV of 10 CFR 50 Appendix B, Criterion III for failing to control system parameters in the HPSI system injection lines to preclude water hammer from occurring during either routine or accident conditions. As a result, the injection lines experienced water hammer on multiple occasions. The licensee has entered the condition into the corrective action program and changed procedures to limit the potential for water

hammer.

The inspectors concluded that the condition is more than minor, because if left uncorrected, the finding would become a more significant safety concern. Specifically, the cause of the water hammer would continue to worsen without additional action. Also, the periodic water hammering of the injection line could weaken piping supports. The finding included a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate the problem such that the resolution addressed causes and the extent of condition prior to the NRC raising concerns. (P.1(c))
Inspection Report# : 2007004 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Service Water Pump 7A Shaft Degraded
The inspectors identified a Green NCV of 10 CFR 50 Appendix B, Criterion III for failing to establish adequate measures to ensure suitability of the application of the material for the 7A Service Water (SW) pump. Specifically the shaft for the A SW pump was constructed of carbon steel and was susceptible to wear due to sand and silt from the ultimate heat sink. The licensee has entered the condition into the corrective action program and has replaced the shaft with a stainless steel shaft.

The inspectors concluded that the condition is more than minor, because if left uncorrected the finding would become a more significant safety concern. Specifically, without prompting by the NRC, the wear on the 'A' SW pump shaft would have continued and would have reduced the margin of safety for the allowable stresses on the pump shaft. The finding was not of more than very low safety significance because in the current condition the 'A' SW pump remained operable, although degraded. The finding included a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to implement a corrective action program with a low threshold for identifying issues. (P.1(a))
Inspection Report# : 2007004 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Defective Part Installed on 1-2 EDG
A self-revealing NCV of 10 CFR 50, Appendix B, Criterion VIII, "Identification and Control of Materials, Parts and Components" was identified for failing to have adequate control measures to prevent the use of defective parts. Specifically, a fuel leak developed due to failure of a defective part on the 1-2 emergency diesel generator (EDG) on February 22, 2007. In 2005, a snubber on the same EDG had failed in the same manner. The failed part has been replaced, and there are no other suspect snubbers in the diesel engines on site.

The inspectors concluded the finding was more than minor because the EDG was inoperable for greater than the Technical Specification allowed outage time. The finding was not of more than very low safety significance because, while the EDG was inoperable, it did not represent an actual loss of safety function for greater than the Technical Specification allowed outage time. In addition, the inspectors concluded this finding had an associated cross cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate the 2005 snubber failure such that the resolution addressed the extent of condition. (P.1(c))
Inspection Report# : 2007004 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
CV-0821 Corrective Actions Not Effective to Prevent Repeat Failure
The inspectors identified a finding of very low safety significance and an associated Non-Citied Violation of 10 CFR 50, Appendix B, Criterion XVI for failing to take adequate corrective action to prevent recurrence of a significant condition adverse to quality. Specifically, valve CV-0821, a safety-related valve which positions automatically on a safety actuation signal, would not position on demand. The licensee discovered sand and silt had caused the valve to

stick in a non-safety position. The same condition occurred less than a year ago. This latest issue was entered into the licensee's corrective action system as AR 01080435 and an Operability Evaluation was completed with compensatory actions to maintain component operability.

The finding is more than minor because it is related to the equipment performance attribute of the mitigating system cornerstone and the cornerstone objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Both trains are potentially impacted since the valve arrangement is similar and susceptible to sand and silt. The finding screened as very low safety significance, using the Phase 1 worksheet of IMC 0609, Appendix A, since the actual loss of function was less than the allowed outage time. The inspectors also determined that this finding has a cross-cutting aspect in the area of Problem Identification and Resolution, because the licensee failed to take the appropriate corrective actions to address safety issues. (IMC 0305, P.1.(d))
Inspection Report# : 2007002 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Control Rod Drive Mechanism Testing Practice Violates TS 3.1.4
The inspectors identified a finding of very low safety significance and an associated Non-Citied Violation of Technical Specifications for the failure to take actions for the appropriate Limiting Condition for Operation (LCO) not being met when surveillance testing exceeded the allowed interval. Specifically, the failure to verify control rod freedom of movement every 92 days (plus a 25 percent grace period) required entry into the Actions of LCO 3.1.4 Condition E, which stipulated the shutdown of the plant within six hours. This was not done on several occasions in the last three years. This issue was entered into the licensee's corrective action system as Action Request 01072543 and the inspectors verified that the rods subsequently had freedom of movement.

The finding is more than minor because, if left uncorrected, the finding could become a more significant safety concern; namely, the inability to detect rod binding could impact reactor shutdown margin in certain events. The finding screened as very low safety significance, Green, using the Phase 1 worksheet of Inspection Manual Chapter 0609, Appendix A, since no actual cases were found where the rods were bound after subsequent cycling.

Inspection Report# : 2007002 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Comply with Technical Specification 3.9.5
The inspectors identified a finding of very low safety significance and an associated Non-Cited Violation of Technical Specification 3.9.5 for removing a train of safety equipment without complying with the required action and completion time when the Limiting Condition for Operability was not met. Specifically, the licensee removed one train of shutdown cooling (by removing one shutdown cooling heat exchanger - (SDCHX)) for planned maintenance while the reactor was in Mode 6 with cavity level below 647 feet. The Action required was to "immediately" initiate action to restore the train to Operable. The train was inoperable for over four days. This issue was entered into the licensee's corrective action system as Action Request 01082854.

The finding is more than minor since it affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. The finding is associated with the cornerstone attribute of equipment performance (unavailability of the SDCHX). The inspectors evaluated this finding in accordance with Appendix G, "Shutdown Operations Significance Determination Process" to IMC 0609. Although only one Decay Heat Removal (DHR) train was operable, other items for defense in depth including backup injection flowpaths, pump sources, vent paths and water sources were available for use. The inspectors completed a Phase 2 assessment and determined that a loss of DHR had a low frequency. The finding is of very low safety significance.
Inspection Report# : 2007002 *(pdf)*

Significance: SL-IV Mar 31, 2007
Identified By: NRC

Item Type: NCV NonCited Violation
Failure to Comply with Technical Specification 5.5.12 TS Basis Control Program
The inspectors identified a Severity Level IV Non-Citied Violation of Technical Specification (TS) 5.5.12 for the failure to comply with the TS Basis Control Program. Specifically, the licensee made a change to the TS bases for TS 3.9.5 which altered the TS definition of "two SDC trains" described in TS 3.9.5. The licensee changed the bases to allow a single SDC to be a member of two trains with cavity level less than 647 feet. A distinct SDCHX is required for each train. This change required prior NRC approval as a change to the TS. This issue was entered into the licensee's corrective action system.

The inspectors concluded this finding is more than minor since it impacted the NRC's ability to perform its regulatory function and resulted in a condition having a very low safety significance (i.e., green). Specifically, the licensee changed the TS bases in a manner that required prior NRC approval. The finding is a Severity Level IV violation consistent with the NRC Enforcement Policy. The inspectors also determined that this finding has a cross-cutting aspect in the area of human performance, because the licensee failed to use conservative assumptions in changing the TS bases. (IMC 0305 H.1(b))
Inspection Report# : 2007002 *(pdf)*

Significance:  Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Incorrect Auxiliary Feedwater Vortex Limit Calculation
The inspectors identified a finding of very low safety significance and an associated Non-Citied Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to use a conservative value for auxiliary pump air entrainment in vortex limit calculations. Specifically, the licensee misinterpreted a graph used to determine the percent air ingestion as a function of the Froude number, which resulted in a pump air entrainment value above a value supported by the vendor. This issue was entered into the licensee's corrective action system and the licensee made procedure changes and provided operator training to ensure that the auxiliary pumps were tripped prior to entraining excessive air.

This issue was more than minor because the calculational error was significant enough to require reanalysis of the pumps' ability to perform their design function and because changes to plant procedures were necessary in order to ensure pump operability. The error also appeared to be programmatic as a similar error was made in calculating the air entrainment to the high pressure safety injection pumps. The issue was of very low safety significance because although it was a design issue, there was not a loss of function of the auxiliary feedwater pumps.
Inspection Report# : 2007002 *(pdf)*

Significance: SL-IV Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Addition of Manual Operator Action Not Evaluated in Accordance with 10 CFR 50.59
The inspectors identified a finding having very low safety significance and an associated Non-Citied Violation of 10 CFR 50.59, "Changes, Tests, and Experiments," for a failure to seek a license amendment. Specifically, when Setpoint Change 96-012 involving the low suction pressure trip of the auxiliary feedwater pumps was implemented, no safety evaluation was performed. When the evaluation was performed in December 2006 the licensee failed to evaluate known deficiencies.

Because violations of 10 CFR 50.59 are considered to be violations that potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the significance determination process. The performance deficiency met Supplement I.D.5, "Violations of 10 CFR 50.59 that result in conditions evaluated as having very low safety significance by the SDP," for a Severity Level IV Violation.
Inspection Report# : 2007002 *(pdf)*

Significance:  Feb 27, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Valve Body Inadvertently Discarded Due to Ineffective Quarantine

The inspectors identified an Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the failure to adequately quarantine a component for failure analysis as required by the licensee’s procedures. The licensee discarded a valve body, which resulted in the failure to complete a corrective action assigned in an associated root cause evaluation. The finding was associated with the work practices component of the human performance cross-cutting area because licensee personnel failed to use appropriate human error prevention techniques to ensure the valve body was effectively quarantined. After the issue was identified by the NRC, the licensee entered the issue into their corrective action program as Action Requests 01076153 and 01076213.

This finding was determined to be more than minor based on a review of the list of more than minor issues in Inspection Manual Chapter 0612, Appendix E, in that the valve body was irretrievably lost. Additionally, if left uncorrected, the failure to quarantine items could become a more significant safety concern since the failure to do so could impede the identification of root and/or contributing causes for conditions adverse to quality and prevent the implementation of appropriate corrective actions. The finding was of very low safety significance because the finding was not a design or qualification deficiency resulting in a loss of function per Generic Letter 91-18; did not represent an actual loss of safety function of a system or the loss of safety function of a train of equipment; and was not potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event.
Inspection Report# : 2007003 *(pdf)*

Significance:  Feb 27, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Extent of Condition for High Pressure Safety Injection Valve Failure
The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for failure to assure that conditions adverse to quality were promptly corrected. Specifically, the inspectors concluded that the licensee failed to develop adequate actions to correct conditions adverse to quality identified during root cause evaluation activities for a valve failure on March 29, 2006. This finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution area because licensee personnel failed to promptly perform an adequate extent of condition for the valve failure. The licensee entered this performance deficiency into the corrective action program as AR 01076287 for resolution.

The finding was more than minor because, if left uncorrected, future conditions adverse to quality would not be fully evaluated or corrected. The inspectors assessed the significance of this finding as very low safety significance because, upon completing an adequate extent of condition review, no additional examples of improperly supported equipment were identified.
Inspection Report# : 2007003 *(pdf)*

Significance:  Dec 31, 2006
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure of Component on 1-2 Emergency Diesel Generator Causes Surveillance Failure
A Green self-revealing Non-Citied Violation of 10 CFR 50, Appendix B, Criterion VIII, "Identification and Control of Materials, Parts and Components" was identified for failing to have adequate control measures needed to prevent the use of defective parts. Specifically, a fuel leak developed due to the incorrect part on the 1-2 Emergency Diesel Generator (EDG) on November 20, 2005, that resulted in aborting a surveillance test. The cause was related to a defective part which had been installed 28 days earlier. The part has been replaced, and there are no other susceptible parts in the diesel engines on site.

The finding is more than minor since the defective part impacted the cornerstone for availability, reliability and capability of the class 1E, on site EDG system and is an associated attribute of equipment performance. The finding screened as very low safety significance, Green, since there was no loss of safety function for the 1-2 EDG.
Inspection Report# : 2006013 *(pdf)*

Significance:  Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation

Non-Conservative Voltage Drop Calculations for Motor Control Center Control Circuits
The inspectors identified a finding having very low significance and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control.” Specifically, the licensee failed to include the voltage drop across control power transformers, did not account for loading due to auxiliary equipment such as relays and indicating lights, did not consider increased cable resistance due to increased temperature in accident environments, used a unverified assumption that calculations for motor control centers 1 and 2 bounded other safety related motor control centers, and failed to account for previously identified non-conservatisms in associated voltage calculations. Following discovery, the licensee performed preliminary calculations verify operability of the circuits.

This issue was more than minor based on review of IMC 0612, “Power Reactor Inspection Reports,” Appendix E, “Examples of Minor Issues,” because the errors had more than a minimal effect on the outcome of the calculation, considerably impacting the available margin of the system such that further evaluation needed to be performed in order to demonstrate that the equipment could perform its safety function. Although, by the end of the inspection, the licensee was able to demonstrate operability; at the time of discovery there was reasonable doubt on the operability of the circuits. Therefore this performance deficiency also impacted the Mitigating Systems Cornerstone objective of ensuring the capability of the circuits. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.3)
Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Effect of Accident Temperatures on Cable Resistance Not Evaluated
The inspectors identified a finding having very low significance and an associated Non-Ccited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control.” Specifically, the licensee failed to consider the effects of accident temperatures on cable resistance in voltage drop calculations. Following discovery, the licensee performed preliminary calculations verify operability of the circuits.

This issue was more than minor based on review of IMC 0612, “Power Reactor Inspection Reports,” Appendix E, “Examples of Minor Issues,” because the errors had more than a minimal effect on the outcome of the calculation, considerably impacting the available margin of the system such that further evaluation needed to be performed in order to demonstrate that the equipment could perform its safety function. Although, by the end of the inspection, the licensee was able to demonstrate operability; at the time of discovery there was reasonable doubt on the operability of the circuits. Therefore this performance deficiency also impacted the Mitigating Systems Cornerstone objective of ensuring the capability of the circuits. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.4)
Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Molded-Case Circuit Breaker Testing Program Deficiencies
The inspectors identified a finding having very low significance and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control.” for the licensee’s failure to ensure that the molded-case circuit breaker (MCCB) testing program remained current with industry and NRC operating experience thus ensuring that the installed safety-related and important-to-safety MCCBs did not degrade and would perform satisfactorily in service. Following discovery, the licensee entered the issue into its corrective action program and was evaluating an update to the testing program.

This issue was more than minor in accordance with IMC 0612, Appendix B, “Issue Disposition Screening,” because the finding was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events. Specifically, the testing program did not ensure the reliability of the installed MCCBs because the program did not include test methods or failure assessment that would accurately and conclusively demonstrate MCCB continued operability. The

issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.5)
Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Battery Terminals Not Coated with Anti-Corrosion Material
The inspectors identified a finding having very low significance and an associated Non-Cited Violation of Technical Specification Surveillance Requirement 3.8.4.4. Specifically the licensee failed to verify that the 125V DC battery cable-to-terminal plate connections (cells 1, 35, 36, and 59) were coated with anti-corrosion material. Following discovery, the licensee coated all the terminal plate connections with an anti-corrosion material.

This issue was more than minor in accordance with IMC 0612, Appendix B, because the finding was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the reliability of the DC power system. The purpose of the technical specification surveillance was to ensure good electrical connections and to reduce terminal deterioration. Specifically, corrosion in connections could potentially result in unacceptable connection resistance and decreased battery capacity, rendering the DC system incapable of performing its required safety function. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.6)
Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Diesel Generator Frequency Variation not Considered in Loading Calculations
The inspectors identified a finding having very low significance and an associated non cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control.” Specifically, the licensee failed to take into account the effect of emergency diesel generator frequency variation in the diesel loading calculations. Following discovery, the licensee performed preliminary calculations and determined that emergency diesel generator 1-2 was still within its load rating.

This issue was more than minor based on review of IMC 0612, “Power Reactor Inspection Reports,” Appendix E, “Examples of Minor Issues,” because the failure to account for frequency variations had more than a minimal effect on the outcome of the calculation; specifically it resulted in reducing the available margin for the two hour loading on emergency diesel generator 1-2 by approximately 75 percent. Although, by the end of the inspection, the licensee was able to demonstrate operability; at the time of discovery there was reasonable doubt on the operability of the diesels. Therefore this performance deficiency also impacted the Mitigating Systems Cornerstone objective of ensuring the capability of the diesels. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.7)

Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Emergency Diesel Generator Automatic Fuel Transfer Equipment not Rated for Expected Max Temp
The inspectors identified a finding having very low significance and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control.” Specifically, the licensee failed to verify that eight components involved with transferring diesel fuel to the emergency diesel generators were rated for the temperature in which they had to operate. Following discovery, the licensee performed a preliminary calculation to demonstrate that the equipment would function if called upon. The primary cause of this violation was related to the cross-cutting area of human performance.

This issue was more than minor in accordance with IMC 0612, Appendix B because the finding was associated with the equipment performance (availability and reliability) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the equipment that was required for the function of automatically transferring fuel to the emergency diesel generator belly tanks was not initially rated for the temperature in which it was required to operate, hence affecting the capability of the emergency diesel generators to respond to an initiating event. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.8)
Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
High Pressure Safety Injection Pump Vortex Limit Calculation Inaccuracies
The inspectors identified a finding having very low significance and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control.” Specifically, the licensee incorrectly interpreted a graph used to determine the percent air ingestion as a function of the Froude number, resulting in a non-conservative air entrainment value for the high pressure safety injection pumps when taking suction from the safety injection refueling water tank at the point of switching over to the containment sump. Following discovery, the licensee performed preliminary calculations to show that the pumps would continue to operate with the correct air entrainment value.

This issue was more than minor based on review of IMC 0612, “Power Reactor Inspection Reports,” Appendix E, “Examples of Minor Issues,” because the calculation error was significant enough to require reanalysis of the accident analysis setpoint, including requesting the pump manufacturer to analyze the capability of the pumps to perform at the higher percent of air entrainment, and required the engineers to reanalyze the pumps safety function in light of the reduced net positive suction head, as well as reduced flow and discharge head at the time the vortex formed. Additionally, the error appeared to be programmatic as a similar error was made in calculating the air entrainment to the auxiliary feedwater pumps. Therefore this performance deficiency impacted the Mitigating Systems Cornerstone objective of ensuring the capability of the high pressure safety injection pumps. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.9)
Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Potential for Safety Injection and Refueling Water Tank Level Switch Setpoints to be Outside TS Limit
The inspectors identified a finding having very low significance and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control.” Specifically, the licensee failed to to establish a proper setpoint for safety injection and refueling water tank level switch such that, when instrument uncertainty was taken into account, the setpoint could be set outside the technical specification limits. Following discovery, the licensee verified the actual set points.

This issue was more than minor in accordance with IMC 0612, Appendix B because, if left uncorrected, the technical specification limit for the safety injection refueling water tank level set points could have been exceeded without the licensee being aware of it. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. (Section 1R21.3.b.10)
Inspection Report# : 2006009 *(pdf)*

Significance: G Dec 01, 2006
Identified By: NRC
Item Type: NCV NonCited Violation

Failure to Follow Operating Procedures
The inspectors identified a finding of very low safety significance associated with a Non-Cited Violation of Technical Specification 5.4.1a for an operator failing to comply with the site quality procedure for Conduct of Operations by manipulating safety related components without any procedure guidance. The operator placed all Auxiliary Feedwater (AFW) pumps out of automatic control, causing the pumps to be inoperable and placing the plant outside of the licensing basis. Corrective actions to address this finding included removing the operator who made the error from shift and briefing each operating crew on this event.

This finding was of more than minor safety significance because the operator did not follow procedural guidance which resulted in the inoperability of all three AFW pumps. This finding is of very low significance because the evaluation of increased risk associated with this error concluded that the total change in core damage frequency (delta CDF) considering internal events, external events, and large early release frequency was less than 1 x 10-6. This finding had a cross-cutting aspect in the area of Human Performance, because the licensee did not use human error techniques, such as self or peer checking, or proper documentation of activities for placing the AFW switches to manual.
Inspection Report# : 2006014 *(pdf)*

Significance: G Dec 01, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Comply with Technical Specifications
The inspectors identified a finding of very low safety significance associated with a Non-Cited Violation of Technical Specification (TS) 3.7.5 for the licensee's failure to comply with the required action time to be in Mode 4 in 30 hours with no Auxiliary Feedwater (AFW) pumps operable. In addition, the inspectors identified the failure to comply with the action of TS 3.0.4 in that the licensee ascended from Mode 3 to Mode 2 with no AFW pumps operable. The licensee's failure to detect and correct, using appropriate board walk-downs and turnover techniques, that all three AFW pumps were in manual directly caused the violation of Technical Specifications. Corrective actions to address this finding included requiring the use of a checklist to verify correct control room switch alignment, and increasing management oversight of the control room.

This finding was of more than minor safety significance because numerous operators failed to identify that all three AFW pumps were inoperable. This finding is of very low significance because the evaluation of increased risk associated with this error concluded that the total delta CDF considering internal events, external events, and large early release frequency (LERF) was less than 1 x 10-6. This finding had a cross-cutting aspect in the area of Human Performance because the licensee did not effectively communicate expectations regarding procedural compliance. Specifically, personnel who had the knowledge of the issue failed to evaluate the condition in accordance with procedure guidance and failed to ensure that the proper procedure for tracking and resolving safety related equipment issues were followed.
Inspection Report# : 2006014 *(pdf)*

Significance: G Dec 01, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Adequate Procedures
The inspectors identified a finding of very low safety significance associated with a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to provide adequate procedures, appropriate for the circumstances of plant startup and shutdown. Specifically, procedures were not adequate to place the Auxiliary Feedwater (AFW) system in service for a plant shutdown. In addition, inadequate procedural guidance existed for safety system alignment checks prior to reactor startup from Mode 3. Corrective actions to address this finding included initiating a root cause analysis and actions to upgrade start-up and shutdown procedures.

This finding was of more than minor safety significance because the inadequate procedural guidance resulted in operators not placing or maintaining the AFW system in an operable condition. This finding is of very low significance because the evaluation of increased risk associated with this error concluded that the total delta CDF considering internal events, external events, and large early release frequency was less than 1 x 10-6. This finding had

a cross-cutting aspect in the area of Human Performance because the licensee did not plan or coordinate shutdown activities relating to AFW operation. The licensee inappropriately relied on pre-job briefings as a compensatory action in lieu of written instructions.
Inspection Report# : 2006014 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
The licensee failed to demonstrate that the performance or condition of High Pressure Injection System had been effectively controlled per 10 CFR 50.65
The inspectors identified a finding of very low safety significance (Green) and an associated Non-Cited Violation of 10 CFR 50.65 "Requirements for monitoring effectiveness of maintenance at nuclear power plants." Specifically, contrary to 50.65(a)(2), the licensee failed to demonstrate that the performance of condition of the HPSI System had been effectively controlled through performance of appropriate maintenance, and did not place the system in 50.65(a)(1) status when system performance deteriorated. The licensee subsequently placed the HPSI system in 50.65(a)(1) status and entered the finding into their corrective action program.

The inspectors determined that not placing the system in (a)(1) status when performance deteriorated is more than minor because it matched an example in IMC 0612, Appendix E, "Examples of Minor Violations," as being more than minor. The finding is of very low safety significance because the finding did not result in loss of a safety function.
Inspection Report# : 2006006 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Control Valve CV-3070 Failed to Stroke
A Green Non-Cited Violation was self-revealed on March 29, 2006, when control valve CV-3070, left train HPSI sub-cooling valve for HPSI pump P-66B, failed to open during preventive maintenance. Subsequent investigation by the licensee identified that a design change had removed a support for the valve. The removal of this support caused the valve to bind. The finding is a violation of 10 CFR 50, Appendix B, Criterion III. The licensee entered the finding into the corrective action program, repaired the valve and added additional support to prevent recurrence.

The inspectors concluded that the issue is more than minor because it affected the operability, reliability, and availability of a mitigating system. The inspectors concluded a phase 3 assessment was required based on the results of phase 1 and 2 assessments. Following a phase 3 assessment, the Senior Reactor Analyst concluded that the finding is of very low safety significance.
Inspection Report# : 2006006 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Inaccurate Surveillance Procedure for Primary Coolant System Leakrate Calculation
The inspectors identified a finding of very low safety significance (Green) and an associated Non-Citied Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control" for the failure to have an accurate Technical Specification (TS) surveillance procedure for primary coolant leakage measurement. Specifically, the licensee did not provide an accurate calculation or accurate acceptance criteria over all the temperature ranges and other plant conditions under which the surveillance procedure could be used. This issue was entered into the licensee's corrective action system and the licensee developed interim guidance on leak rate calculations pending a procedure revision.

The finding is more than minor because it can reasonably be viewed as a precursor to a more significant event because

the errors can prevent recognition of leakage in excess of the TS and licensing basis. The finding screened as very low safety significance, Green, using the Phase 1 worksheet of IMC 0609, Appendix A, since no actual cases were found where unidentified leakage exceeded the TS.
Inspection Report# : 2006013 *(pdf)*

Significance: G Dec 15, 2006
Identified By: NRC
Item Type: FIN Finding
Failure to Correctly Apply Pressure Locking Thrust in MOV Performance Test Procedures
The inspectors identified a finding having very low significance. Specifically, the licensee failed to correctly apply the effect due to pressure locking in the valve actuator capability margin to open for the boric acid gravity feed motor operated valves MO-2169 and MO-2170. Following discovery, the licensee performed preliminary calculations to ensure valve operability.

This issue was more than minor in accordance with IMC 0612, Appendix B, because if left uncorrected, then motor operated valve actuators would have deteriorated over time without being detected, resulting in the valves being unable to perform their required functions. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations. No violation of NRC requirements occurred. (Section 1R21.3.b.11)
Inspection Report# : 2006009 *(pdf)*

Emergency Preparedness

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Properly Implement Approved EAL Scheme
The inspectors identified a Green NCV of 10 CFR 50.47 for failure to properly implement approved Emergency Action Levels (EAL). As a result of the improper EAL implementation, site personnel responsible for EAL declarations could improperly classify some Alerts as Site Area Emergencies (SAEs). The licensee has provided training to site personnel regarding correct declaration of this EAL.

The inspectors determined that the licensee's failure to properly implement the EALs represented a performance deficiency that warranted a significance determination. The inspectors concluded that the finding affected the Emergency Preparedness Cornerstone objective for the attribute of Emergency Response Organization (ERO) readiness in that the licensee improperly implemented an EAL. In addition, the finding had a cross-cutting aspect in the area of human performance, resource component. Specifically, the training of personnel resulted in improperly classifying the drill scenario. (H.2.(b))
Inspection Report# : 2007004 *(pdf)*

Occupational Radiation Safety

Significance: G Dec 31, 2006
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Adequately Implement Radiological Dose Controls
A Green finding was self-revealed for failure to adequately implement radiological dose controls during Refueling Outage 18 (RO18). Specifically, work control and planning issues (worker fatigue, worker proficiency, and material condition) contributed to additional worker doses. The total sum of the occupational radiation doses (collective dose) received by individuals for one work activity was found in excess of that collective dose planned or intended (i.e., that

dose the licensee determined was ALARA for those work activities).

The finding was more than minor because the issue was associated with the Program/Process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to ensure adequate protection of the worker?s health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. The inspectors concluded that the finding did not result in an occupational overexposure, a substantial potential for an overexposure, or a compromised ability to assess dose. The inspectors determined that the finding involved ALARA planning and work controls. Considering the licensee's current 3-year rolling collective dose average exceeds 135 person-rem per unit, the actual dose was less than 25 person-rem and there are no other occurrences, the inspectors concluded that the SDP assessment for this finding was of very low safety significance, Green. The inspectors also determined that this finding had a cross-cutting aspect in the area of human performance because the licensee failed to appropriately coordinate work activities.
Inspection Report# : 2006013 *(pdf)*

Public Radiation Safety

Significance: G Jun 30, 2007
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to effectively survey slings before granting unconditional release from the RCA
A self-revealed finding of very low safety significance and an associated violation of NRC requirements was identified for the failure to effectively survey slings before granting unconditional release from the Radiologically Controlled Area (RCA). This was first identified when a sling alarmed the PM-7 (portal radiation monitor) at the security building on October 13, 2006. A few days later, an individual working outside of the RCA became contaminated after handling a rigging/lifting sling. Extent of condition surveys identified 17 additional slings outside the RCA and/or Protected Area that alarmed the tool monitor. Radioactive material was also identified on two of these slings using a conventional hand-held frisker survey instrument.

The issue was more than minor because it was associated with the Program/Process attribute of the Public Radiation Safety Cornerstone and affected the cornerstone objective to ensure the adequate protection of the public domain as a result of routine civilian nuclear reactor operation. A Green NCV of 10 CFR 20.1501 was identified for the failure to adequately survey materials to evaluate the presence of radioactive material. The cause of this deficiency is a legacy issue and does not represent current licensee performance. Therefore, this deficiency does not have any cross-cutting aspects.
Inspection Report# : 2007004 *(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

Significance: SL-IV Dec 15, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Startup Transformer Not Evaluated for Past Operability and Reportability
The inspectors identified a finding of very low safety significance and an associated Severity Level IV Non-Cited

Violation of 10 CFR 50.73 (a)(2). Specifically, the licensee failed to analyze past operability and submit a licensee event report when the startup transformer 1-2 tap changer control was found to be non-operational. Once analyzed, the licensee determined that one of the two required circuits from the offsite power supply was inoperable on at least three non-consecutive occasions between May 17 and May 22, 2006.

Because violations of 10 CFR 50.73 are considered to be violations that potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the significance determination process. The performance deficiency met Supplement I.D.4, “Failure to Make a Required Licensee Event Report” for a Severity Level IV violation. (Section 1R21.3.b.1)

Inspection Report# : 2006009 *(pdf)*

Last modified : August 24, 2007