

Palisades

4Q/2006 Plant Inspection Findings

Initiating Events

Significance:  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*)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Power Operations with One Rod Unlatched Due to an Inadequate Procedure

A self-revealed Non-Cited Violation (NCV) of Technical Specification (TS) 5.4 of very low safety significance was identified on May 11, 2006, when abnormal flux distribution prevented the licensee from continuing power ascension. The licensee determined a rod was not latched. The licensee violated TS 5.4, "Procedures," during performance of rod latching activities. The licensee's procedures were not adequate to latch the rod, and ensure the rod was latched prior to power operations. The licensee entered the item into the corrective action program. This finding also affected the cross cutting aspect of human performance. Immediate corrective actions included shutting down the reactor and latching the rod.

The inspectors determined the finding is more than minor since the finding affected cornerstone objectives for both initiating events and mitigating systems. Specifically, the inserted rod reduced available shutdown reactivity and shifted core flux to reduce margin to thermal limits. The finding was of very low safety significance because power remained very low, less than 25 percent, core thermal limits were not violated, and adequate shutdown margin existed.

Inspection Report# : [2006004](#) (*pdf*)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Polar Crane Struck Jib Crane

A self-revealed NCV of TS 5.4 occurred on April 22, 2006, when the polar crane bridge struck and severely damaged the jib crane. The licensee violated TS 5.4 for failing to have adequate procedures in place during maintenance that could affect safety-related equipment. The licensee entered the finding into their corrective action program. Immediate corrective actions included safely lowering attached loads, removing the crane from service, and inspecting affected equipment. This finding affected the cross cutting aspect of human performance.

The inspectors determined the finding is more than minor since the finding could reasonably be seen as a precursor to more significant events. Specifically, failure to control load movements could result in heavy load drops. The finding is of very low safety significance since no loads were dropped and the damage that did occur did not affect inservice safety systems. Inspection Report# : [2006004](#) (*pdf*)

Significance:  Mar 31, 2006

Identified By: NRC

Item Type: FIN Finding

Moisture Separator Reheater Relief Valve Could Not Be Reseated

The inspectors determined that a finding of very low safety significance (Green) was self-revealed when a Moisture Separator Reheater relief valve failed to reseat during testing. This failure resulted in a slight power rise due to the additional steam demand. Although the operations staff believed a method existed to manually close the valve, a manual method did not exist and a power reduction was needed to reseat the valve. This finding also affected the cross-cutting area of human performance. The licensee stopped use of the procedure and entered the item into their corrective action program.

The inspectors determined that not having adequate planning, contingency plans and procedures in place to reseat the relief valve is more than minor because the failure affected the initiating event cornerstone attribute of procedure quality and increased the likelihood an initiating event due to the increased steam demand of an unseated relief valve. The finding is of very low safety significance since the event did not impact LOCA initiators, mitigation equipment or external event initiators. Corrective action included placing a hold on all relief valve testing until completion of a formal cause evaluation as well as placing this in the CAP system. No violation of NRC requirements occurred.

Inspection Report# : [2006002](#) (*pdf*)

Mitigating Systems

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 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 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-conservatism 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:  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 cited 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:  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:  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:  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:  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:  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:  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 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:  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 1×10^{-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:  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 1×10^{-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:  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 1×10^{-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:  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:  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*)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Comply with 10 CFR 50.59 for P-5 Removal from the FSAR

The inspectors identified a Severity Level IV NCV of 10 CFR 50.59 for improperly removing commitments to maintain a keep warm pump from the Final Safety Analysis Report (FSAR). The licensee had committed to maintaining this pump in lieu of inspections of the intake structure. The licensee entered the item in the corrective action program and performed immediate corrective actions, including inspections of the intake structure.

The inspectors concluded this finding is more than minor since it impacted the NRC's ability to perform its regulatory function. Specifically, the licensee changed the FSAR in a manner that required prior NRC approval. The finding is a Severity Level IV violation consistent with the NRC Enforcement Policy.

Inspection Report# : [2006004](#) (*pdf*)

Significance:  Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to comply with TS 5.4.1, "Procedures," for an Inadequate Procedure Installing a commercial grade, portable ground detector

The inspectors identified a finding of very low safety significance (Green) when the procedure used to install commercial grade portable ground detection equipment did not provide adequate Class 1E to non-Class 1E separation. During this installation, the licensee did not declare the affected bus inoperable. This finding represented a non-cited violation of Technical Specification (TS) 5.4.1, "Procedures," for an inadequate procedure related to installing a commercial grade, portable ground detector which was not appropriate for the circumstances. The licensee entered the item in the corrective action program and has restricted use of the procedure. The portable ground detection equipment has been removed.

This finding is more than minor because the installation of this temporary equipment impacted the DC bus and made the bus more susceptible to a fault thus degrading a mitigating system function. The finding is of very low safety significance

because the improper installation did not result in loss of availability of the bus and only one bus was affected at a time.

Inspection Report# : [2006002 \(pdf\)](#)

Significance:  Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Properly Test the Emergency Diesel Generators Resulting in Preconditioning

The inspectors identified a finding of very low safety significance (Green) when the Emergency Diesel Generators (EDGs) were unacceptably preconditioned prior to testing. This finding represented a non-cited violation of 10 CFR 50 Appendix B, Criterion XI in that the tests were not performed under suitable environmental conditions. The licensee entered the item in the corrective action program.

This finding is more than minor because unacceptable preconditioning can change the as-found condition of the EDG system and therefore mask potential performance issues. The finding is of very low safety significance due to the limited impact that the preconditioning had on the EDG performance. All indications after the testing was performed with an acceptable test is that the machine performance is currently acceptable.

Inspection Report# : [2006002 \(pdf\)](#)

Significance:  Feb 17, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failed Swagelok Fitting on High Pressure Safety Injection Flow Transmitter FT-0312

A finding of very low safety significance was self-revealed on January 4, 2006, when an incorrectly installed swagelok fitting on high pressure safety injection flow transmitter FT-0312 failed. A Non-Cited Violation of 10 CFR 50 Appendix B, Criterion V, "Instructions, Procedures and Drawings," was associated with this finding for the failure to have prescribed instructions when the swagelok fitting was originally installed during field change FC-731 in 1988. Corrective actions included: the swagelok fitting on FT-0312 was repaired and verified to be installed correctly; two other swagelok fittings on high pressure safety injection flow transmitters were disassembled, inspected and repaired as necessary; other swagelok fittings installed in 1988 during field change FC-731 were visually inspected to verify that there was no evidence of leakage. Additional swagelok fittings were scheduled to be disassembled and inspected during the 2006 refueling outage to further address extent of condition.

This finding was more than minor because it was associated with the equipment performance attribute for mitigating systems and the cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences was affected. Specifically, a leak from the failed swagelok fitting on the high pressure safety injection system flow transmitter FT-0312 would have decreased the capability of the high pressure safety injection system to inject water to the reactor core during a small break loss of coolant accident. The finding is of very low safety significance because the high pressure safety injection system's safety function was not lost.

Inspection Report# : [2006003 \(pdf\)](#)

Barrier Integrity

Significance:  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 NCV 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:  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, 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*)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Comply with 10 CFR 50 Appendix B, Criterion XVI for Recurring Fuel Assembly Cladding Failure

A self-revealed NCV of Criterion XVI was identified when damage to a fuel pin was found. The finding of very low safety significance (Green) occurred because the licensee failed to assure adequate corrective actions were implemented to prevent recurrence of fuel cladding damage to a fuel assembly. This finding represented an NCV of 10 CFR 50, Appendix B, Criterion XVI, in that the appropriate actions were not in place for a significant condition adverse to quality. The licensee entered the item into the corrective action program. Immediate corrective action included changing the core design and replacing susceptible fuel rods with stainless steel pins.

The inspectors determined that the finding is more than minor since the finding impacted the Barrier Integrity cornerstone objective of fuel clad integrity. Specifically, the clad on one fuel element had fretted away exposing the fuel plenum and plenum spring. The finding is of very low safety significance because only the fuel barrier was affected and plant TSs were not exceeded for fission product activity in the coolant.

Inspection Report# : [2006004](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  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*)

Significance:  Apr 19, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Faliure To Develop an Adequate Procedure For Cask And Liner Reuse

A self-revealing finding of very low safety significance and an associated Non-Cited Violation of Technical Specification 5.4 "Procedures," were identified. On April 19, 2006, while lowering a shielded cask and its liner into the reactor cavity in preparation for placing additional incore (irradiated) instruments into the liner, the liner failed to displace air and adequately flood-up with water. As a result, the liner, which housed highly radioactive irradiated incore detectors, floated up to the pool surface where it remained for about 12 seconds before sinking back down into the pool. The incident created transient elevated radiation levels on the refueling deck of the containment building resulting in radiological exposure to the workers in the area. The primary cause of this finding was an inadequate procedure for the work activity and the procedure change review process that failed to identify deficiencies with the procedure and with its development. The procedure allowed a carbon steel liner to be used on multiple occasions in a boric acid environment without properly accounting for its design, its material composition, and the manufacturer's intended use. Licensee corrective actions included a procedure revision to preclude the repeated use of carbon steel liners in harsh environments, and an action to evaluate the current procedure change review processes.

The finding was more than minor because it was associated with the program and process attribute of the Occupational Radiation Safety Cornerstone, and adversely affected the Cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. The finding was of very low safety significance because it did not involve significant radiation exposure or a substantial potential for an overexposure, nor was the licensee's ability to assess worker dose associated with the event compromised. The issue was a Non-Cited Violation of Technical Specification 5.4 which required, in part, that procedures appropriate to the circumstances be developed.

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Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

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 : March 01, 2007