

# Palisades

## 2Q/2012 Plant Inspection Findings

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### Initiating Events

**Significance:** G Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Operation of Primary Coolant Pumps Outside Design Basis**

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR 50 Appendix B, Criterion III, Design Control, for the failure to operate the Primary Coolant Pumps (PCPs) in accordance with their design operating criteria. In October 2011, a slight rise in vibration levels on the 'C' PCP occurred and was sustained for approximately 24 hours. This was followed by a short spike in vibrations and a return to a lower stabilized value than what had been previously observed. Investigation by the licensee revealed it was likely a piece of an impeller vane which had deformed and broken free. Based on a review of operating experience associated with impellers and further licensee investigation, the inspectors concluded that the PCPs had been operated outside of their license/design basis as stated in the Updated Final Safety Analysis Report (UFSAR) with regard to minimum net positive suction head and maximum flow. Further, based on impeller like pieces found in the reactor vessel in 2007 (which an apparent cause stated likely came from a PCP), and an operating history which indicated past occurrences of vane breakage and degradation, the inspectors concluded the licensee had the ability to foresee and correct the condition affecting the PCPs prior to the release of a piece in October 2011. The licensee entered the issue in their Corrective Action Program (CAP) as CR PLP 2011 5744 and performed additional research into the phenomena leading to the impeller degradation. The PCP operating sequence was changed, an Operational Decision Making Issue was implemented, and efforts to explore further procedural changes are on going to mitigate degradation of the impellers.

The issue was determined to be more than minor because it impacted the Design Control attribute of the Initiating Events Cornerstone, adversely affecting the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the potential release of impeller pieces in the primary coolant system (PCS) challenges the cornerstone objective. The issue screened as Green, or very low safety significance, based on answering 'no' to the Loss of coolant Accident (LOCA) initiator question under the Initiating Events cornerstone in IMC 0609, Attachment 4, Table 4a. This was based on a review of the licensee's assessment by the regional inspectors, experts at the Office of Nuclear Reactor Regulation (NRR) and Office of Research in determining the deficiency would not likely be an impact to the coolant pressure boundary. The inspectors determined there was no associated cross cutting aspect because the finding was not indicative of current licensee performance.

Inspection Report# : [2012003](#) (*pdf*)

**Significance:** G Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Follow Work Management Process for Reactor Head Work**

The inspectors identified a finding of very low safety significance with an associated NCV of Technical Specification (TS) 5.4.1, Procedures, for the failure to properly follow the work management process for work done to loosen stuck reactor head studs. During the April May 2012 refueling outage, difficulty was encountered in loosening some of the reactor head studs to support refueling operations. The decision was made to retension the studs that had already been detensioned (without ascending back to Mode 5 from Mode 6) and start over using a more precise electric pumping unit that had not been used to that point due to equipment issues. Contrary to EN WM 102, Work Implementation and Closeout, the licensee used the field change process, not authorized for this type of change, to "pen and ink" different tensioning values and sequence in the normal tensioning procedure (so as not to return to Mode 5). Additionally, the inspectors identified that the steps documented as having been performed as a record of the contingency actions taken

differed from what was actually performed. The licensee entered the issue into the CAP as Condition Reports CR PLP 2012 2610 and CR PLP 2012 2848, and corrected the contingency work instructions.

The issue was determined to be more than minor because if left uncorrected, it could lead to more significant safety issues. Specifically, the failure to follow appropriate processes and correctly document reactor head work is indicative of shortfalls that could occur for other safety related work. Additionally, the licensee was slow to recognize the issue. The inspectors concluded that the Initiating Events Cornerstone was impacted because of the potential for an inadvertent mode change. The finding screened as Green, or very low safety significance, using IMC 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process," based on all of the mitigation criteria being met and no phase 2 or 3 analysis being required per Checklist 3, indicating there was no impact to shutdown safety functions. The inspectors determined that the finding had an associated cross cutting aspect in the area of human performance in that personnel work practices did not support human performance. Specifically, supervisory and management oversight failed to assure the proper processes were followed

Inspection Report# : [2012003](#) (*pdf*)

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Potential Exam Compromise During Requalification Exams**

A finding of very low safety significance and associated NCV of 10 CFR 55.49, "Integrity of Examination and Tests" was identified by the inspectors for failure to ensure there were no activities which compromised exam integrity. Specifically, the licensee failed to properly review Simulator Exam Scenario (SES) 130 and the associated Reactivity Management Briefing Sheet. Had the briefing sheet been provided to the crew being evaluated, without inspector intervention, it would have resulted in an exam compromise. The inspectors identified that a critical task was on the crew briefing sheet prior to its administration, and told the licensee of the condition. The licensee subsequently added a page break to push the critical task from the briefing sheet to the following page. There was no actual exam compromise. The licensee also entered the issue in their Corrective Action Program (CAP) as CR PLP 2012 1001.

Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process, because the issue dealt with licensed operator qualification. The violation is consistent with a Severity Level IV violation using the enforcement policy. The inspectors determined that the underlying technical issue could be evaluated using the SDP. This issue is associated with the Initiating Events cornerstone. The underlying risk significance was determined to be more than minor because if left uncorrected, this event could have the potential to put unqualified operators in the control room. Specifically, the Reactivity Management Briefing Sheet in SES 130 inadvertently contained Critical Task No. 1 of the scenario. Had the briefing sheet been provided to the evaluated crew with the critical task provided at the bottom of the sheet, the crew would have known one of the performance elements of the scenario for which the crew was being evaluated. The finding screened as Green because all questions for the Initiating Events Cornerstone in Table 4a of IMC 0609 Attachment 4 could be answered 'no.' The inspectors did not identify any applicable cross cutting aspects associated with this finding in reviewing IMC 0310.

Inspection Report# : [2012002](#) (*pdf*)

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Potential Exam Compromise During Requalification Exams**

A finding of very low safety significance and associated NCV of 10 CFR 55.49, "Integrity of Examination and Tests" was identified by the inspectors for failure to ensure there were no activities which compromised exam integrity. Specifically, the licensee failed to properly review Simulator Exam Scenario (SES) 130 and the associated Reactivity Management Briefing Sheet. Had the briefing sheet been provided to the crew being evaluated, without inspector intervention, it would have resulted in an exam compromise. The inspectors identified that a critical task was on the crew briefing sheet prior to its administration, and told the licensee of the condition. The licensee subsequently added a page break to push the critical task from the briefing sheet to the following page. There was no actual exam

compromise. The licensee also entered the issue in their Corrective Action Program (CAP) as CR PLP 2012 1001.

Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process, because the issue dealt with licensed operator qualification. The violation is consistent with a Severity Level IV violation using the enforcement policy. The inspectors determined that the underlying technical issue could be evaluated using the SDP. This issue is associated with the Initiating Events cornerstone. The underlying risk significance was determined to be more than minor because if left uncorrected, this event could have the potential to put unqualified operators in the control room. Specifically, the Reactivity Management Briefing Sheet in SES 130 inadvertently contained Critical Task No. 1 of the scenario. Had the briefing sheet been provided to the evaluated crew with the critical task provided at the bottom of the sheet, the crew would have known one of the performance elements of the scenario for which the crew was being evaluated. The finding screened as Green because all questions for the Initiating Events Cornerstone in Table 4a of IMC 0609 Attachment 4 could be answered 'no.' The inspectors did not identify any applicable cross cutting aspects associated with this finding in reviewing IMC 0310.

Inspection Report# : [2012002](#) (*pdf*)

**Significance:**  Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Intermittent Fuse Contact Causes Feedwater Transient and Plant Trip**

A self revealed finding of very low safety significance and associated NCV of Technical Specification (TS) 5.4.1, Procedures, was identified for the failure to adequately implement the fuse control procedure during the reinstallation of a safety related fuse after maintenance. Specifically, insufficient contact was established between a fuse holder clip and fuse ferrule for safety related fuse FUZ/Y1014 2, resulting in the opening of the 'A' Feedwater Pump Recirculation valve, CV 0711 at full power. This induced a feed transient which required operators to manually trip the reactor. The licensee took compensatory actions to ensure the valve was isolated prior to the return to full power operation. The licensee also entered the issue in their CAP as CR PLP 2012 02182 to further evaluate the conditions of the procedural guidance implementation, procedural disconnects, application of "loose fuse" operating experience, and the extent of condition for other safety related fuses.

The finding was determined to be greater than minor in accordance with IMC 0612 Appendix B, "Issue Screening," because it is associated with the Initiating Events cornerstone attribute of Equipment Performance and adversely impacted the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the cause of the feedwater transient which led to a plant trip on December 14, 2011 was intermittent electrical contact between FUZ/Y1014 2 and its holder clip. The finding screened as "Green" in the Initiating Events cornerstone by answering "no" to the Transient Initiator question of contributing to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The finding had a cross cutting aspect in the area of problem identification and resolution related to the cross cutting component of operating experience, in that the licensee implements and institutionalizes operating experience through changes to station processes, procedures, equipment, and training program. In this finding, the issue of "loose fuses," potential causes of these loose fuses, and the potential plant effects this could cause have been identified in externally generated operated experience as well as Palisades' own operating experience from a loose fuse on a safety-related component in 2011. Therefore, the inspectors determined this issue was reflective of current performance, and the inspectors determined that lessons learned from these identified "loose fuse" issues were not extensively reviewed for applicability throughout systems in the plant and were not fully institutionalized to prevent these issues from recurring.

Inspection Report# : [2012002](#) (*pdf*)

**Significance:**  Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Ensure Reactor Head Vents Closed During PCS Fill**

A finding of very low safety significance with an associated NCV of TS 5.4.1 was self revealed on January 7, 2012,

for the failure to adequately implement a procedure when indications of Primary Coolant System (PCS) leakage exceeding 10 gallons per minute (gpm) were observed by the control room operators. The finding occurred while the plant was shut down and in a cold shutdown condition. Specifically, the licensee discovered that reactor head vent valves MV PC1060B and MV PC1060C had not been shut before filling and pressurizing the PCS, contrary to the requirements of procedure SOP 1C, Primary Coolant System Heatup. The licensee shut the valves and isolated the leak. The leakage resulted in approximately 3000 gallons of primary coolant being transferred to the reactor cavity tilt pit. This leakage was subsequently drained prior to startup. The licensee entered the issue as CR PLP 2012 00165 in their CAP.

The finding was determined to be greater than minor in accordance with IMC 0612 Appendix B, "Issue Screening," because it is associated with the Initiating Events Cornerstone attribute of Configuration Control and adversely impacted the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, uncontrolled release of coolant from the PCS could challenge plant stability. The issue screened as Green utilizing Attachment 1 of IMC 0609 Appendix G, "Shutdown Operations Significance Determination Process." Specifically, the finding and plant conditions at the time did not warrant the use of a Phase 2 or 3 analysis, because there was no impact on any safety functions. The inspectors determined the cause of the finding was associated with the cross cutting area of human performance. Specifically, by assuming the reactor head vent valves were not open, operations shift personnel did not use conservative assumptions in decision making and adopt a requirement to demonstrate that a proposed action was safe in order to proceed.

Inspection Report# : [2012002](#) (pdf)

**G**

**Significance:** Dec 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Establish Maintenance Procedures for Safety Related Breakers in Panel D11-2**

A finding of very low safety significance and associated NCV of Technical Specification (TS) 5.4 was identified by the inspectors for failure to properly establish written procedures for maintenance that can affect the performance of safety related equipment as required by Regulatory Guide 1.33, Section 9. Specifically, during Refueling Outage 21 (RFO 21) maintenance personnel were conducting breaker testing and replacements on the 125 VDC Panel D11 2 with an inadequate work order package that did not include the appropriate procedure steps for replacing breakers in the panel. Instead, the work order directed maintenance workers in the field to install the breakers using a procedure that was not prescriptive in the reinstallation instructions and did not include signature steps for supervisor verification/inspection of the reinstallation activities. The licensee corrected the improperly installed breakers prior to reactor startup. The licensee also entered the issue in their Corrective Action Program (CAP) as CR-PLP-2012-00648.

The performance deficiency was more than minor because it affected the Initiating Events Cornerstone attribute of Equipment Performance and adversely impacted the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the breaker replacement workmanship deficiencies from the maintenance performed on Panel D11 2 during RFO 21 led to intermittent operation of some loads supplied by the panel. The finding screened as "Green" in the Initiating Events Cornerstone by answering "no" to the Transient Initiator question of contributing to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The finding had a cross cutting aspect in the area of human performance related to the cross cutting component of resources, in that the licensee ensures that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety and specifically, the training of personnel and a sufficient number of qualified personnel are available to complete tasks commensurate with maintaining nuclear safety

Inspection Report# : [2011005](#) (pdf)

**G**

**Significance:** Dec 31, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Failure to Control Packing Configuration of Pressurizer Spray Control Valves**

A finding of very low safety significance was self revealed on September 16, 2011, when the packing for CV 1057, one of two pressurizer spray control valves, failed resulting in unidentified Primary Coolant System (PCS) leakage in excess of TS limits. As a result, the licensee manually tripped the reactor and declared an Unusual Event was declared. The licensee failed to maintain the configuration of the plant in accordance with the design. No violation of regulatory requirements was identified, however, the licensee failed to implement an Entergy procedure, a self-imposed standard. Contrary to the licensee's Configuration Management procedure, EN DC 105, the intended packing configuration was not installed during RFO 21. Specifically, end rings integral to the design were omitted. As immediate corrective action, the licensee repacked CV 1057 and checked the consolidation of the sister valve, CV 1059. The licensee also entered the issue in their CAP as CR-PLP-2012-04620 and performed a root cause analysis.

The inspectors determined the failure of the packing due to inadequate configuration management was a performance deficiency warranting further evaluation with the Significance Determination Process. The performance deficiency was more than minor because it affected the Initiating Events Cornerstone attribute of Design Control and adversely impacted the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the issue resulted in PCS leakage greater than TS limits, a manual reactor trip, and declaration of an Unusual Event. The issue screened as Green, or very low safety significance, in a Phase 3 SDP evaluation performed by regional Senior Reactor Analysts. The finding had a cross cutting aspect in the area of Human Performance associated with the Resources component. Specifically, the licensee failed to ensure that complete, accurate, and up to date design documentation, procedures, and work packages were available and adequate to ensure nuclear safety for maintenance on the pressurizer spray control valves.

Inspection Report# : [2011005](#) (pdf)

**Significance:** **W** Oct 28, 2011

Identified By: NRC

Item Type: VIO Violation

### **Failure to Prevent Recurrence of a Significant Condition Adverse to Quality concerning Service Water Pump Couplings.**

A self revealed finding with a preliminary low to moderate safety significance and two associated apparent violations of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," and Criterion III, "Design Control," was self-revealed on August 9, 2011, due to the licensee's failure to prevent recurrence of a significant condition adverse to quality. Specifically, on September 29, 2009, coupling #7 on service water pump P-7C failed due to intergranular stress corrosion cracking (IGSCC). The corrective actions taken to prevent recurrence did not consider all critical factors to prevent or minimize IGSCC from recurring. On August 9, 2011, coupling #6 on service pump P-7C failed due to IGSCC. In addition, in 2007, when the licensee implemented a design change to the coupling material, the licensee failed to reasonably address the factors to reduce susceptibility of the 416 stainless steel couplings to IGSCC. This issue was entered into the licensee's corrective action program (CAP) as CR-PLP-2011-03902. Long term corrective actions included replacing all couplings in the three service water pumps with couplings made of a material that was less susceptible to intergranular stress corrosion cracking.

This finding was determined to be more than minor because the finding was associated with the Initiating Events Cornerstone attribute of Design Control and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operation. Specifically, as a result of the performance deficiency, on August 9, 2011, pump P-7C failed during normal operation. The inspectors performed a Phase 1 SDP evaluation and determined that a Phase 2 evaluation was required because this finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors then performed a Phase 2 evaluation using the pre solved SDP worksheets for Palisades and determined that this finding screened as Yellow. Due to inherent conservatism in the Phase 2 analysis, the RIII Senior Reactor Analysts performed a Phase 3 SDP analysis. The results of the Phase 3 SDP evaluation concluded that this finding was preliminarily determined to be White. The finding has a cross cutting aspect in the area of Problem Identification and Resolution, Operating Experience, because the licensee failed to take into consideration significant operating experience from as early as 1993 and as late as 2010 that linked IGSCC susceptibility of 410 and 416 stainless steels to temper embrittlement (P.2 (b)).

Inspection Report# : [2011016](#) (pdf)

Inspection Report# : [2011020](#) (pdf)

**Y****Significance:** Oct 28, 2011

Identified By: NRC

Item Type: VIO Violation

**Failure to Have Adequate Work Instructions for Work Performed on Panel D11-2.**

A preliminary finding of substantial safety significance (Yellow) and an associated apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self revealed on September 25, 2011. The licensee failed to ensure that the work instructions on safety related 125 Volt direct current (DC) Distribution Panel D11 2 through Work Orders (WO) 291194 01, 291210 01, and 291123 03, all activities that affected quality, were adequate for the scheduled work; and the licensee failed to ensure the work instructions were followed by your staff for the affected activity. As a result of these deficiencies, during the work in the field on the energized Panel D11 2, a positive horizontal bus bar rotated and contacted a negative horizontal bus bar. This in turn, caused an electrical fault in Panel D11 2 and a complete loss of the left train 125 Volt DC safety related system coincident with both 120 Volt preferred alternating current (AC) power sources, busses Y 10 and Y 30. These electrical losses resulted in a reactor and turbine trip at approximately 3:06 p.m. on September 25, 2011, coincident with a Safety Injection Actuation Signal, Main Steam Isolation Signal, Containment High Radiation Signal, Containment Isolation Signal, Auxiliary Feedwater Actuation Signal, and Containment High Pressure Alarm (no actuation signal). This issue was documented in the licensee's corrective action program as CR PLP 2011 04822 and at the end of this inspection, the licensee continued to perform a root cause evaluation to determine the causes of the event and develop corrective actions. As a remedial corrective action on September 25, 2011, the licensee repaired the damage caused to Panel D11 2 to restore it to service and addressed the operability and effect of the transient on other components.

The inspectors determined that the finding was more than minor in accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated December 24, 2009, because it was associated with the Procedure Quality and Human Performance attributes of the Initiating Events Cornerstone, and adversely affected the cornerstone objective to limit the likelihood of those events, that upset plant stability and challenge critical safety functions during power operations. Specifically, the failure to create work orders in accordance with procedures and the failure to perform work in accordance with prescribed instructions directly resulted in the loss of the left train of 125 Volt DC coincident with two preferred AC power sources. The Phase 1 Significance Determination Process (SDP) evaluation determined that the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. Therefore, the finding required a Phase 2 evaluation using IMC 0609 Appendix A, "Determining the Significance of At Power Reactor Inspection Findings," which determined the significance was a Yellow Finding. The SRAs used the Palisades SPAR [Simplified Plant Analysis Risk] model, Revision 8.17, for the SDP Phase 3 evaluation. The result of the Phase 3 SDP is a preliminary finding of substantial safety significance (Yellow) with an estimated conditional core damage probability (CCDP) of  $1.6E-5$ . The inspectors also determined this finding had a cross cutting aspect in the area of human performance, work practices, because the licensee failed to communicate and ensure human error prevention techniques were used, such as holding formal pre job briefings, self and peer checking, and proper documentation of activities. The licensee also failed to ensure that these techniques were used commensurate with the risk of the assigned task, such that work activities are performed safely. Finally, during these maintenance activities, the inspectors concluded that licensee personnel proceeded in the face of uncertainty or unexpected circumstances (H.4 (a)).

Inspection Report# : [2011014 \(pdf\)](#)Inspection Report# : [2011019 \(pdf\)](#)**G****Significance:** Oct 28, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement Emergency Operating Procedure Immediate Actions.**

A finding of very low safety significance and associated non cited violation of Technical Specification 5.4.1 was identified by the inspectors for the failure to implement procedures for combating emergencies and other significant events as required by Regulatory Guide (RG) 1.33, Section 6. Specifically, during the performance of EOP 1.0, "Standard Post Trip Actions," in response to a loss of the left train 125 Volt DC bus and subsequent plant trip, the control room reactor operators failed to immediately take the contingency action in the "response not obtained"

column for an immediate action step that could not be met due to the partial loss of control room indications. Procedure EOP 1.0, Step 2.b. of Section 4.0, "Immediate Actions," required the reactor operator in the control room to verify that the Main Generator was disconnected from the grid, and if that step cannot be completed, then the operator was required to connect a jumper across the corresponding relay terminals in the control room panel to open the output breakers. These actions were not immediately taken by the control room staff at the time of this event. Once the control room staff was aware of the "closed" status of the Main Generator output breakers from an update provided by an extra reactor operator who was in contact with transmission system operator, the action step was then taken by the turbine side reactor operator to jumper the relay terminals in the control room panel to open the breakers. This issue was documented in the licensee's corrective action program as CR PLP 2011 06081 and at the end of the special inspection the licensee was still performing an evaluation to determine the causes and to develop corrective actions. As a remedial corrective action on October 28, 2011, each operations crew received a briefing about operator expectations, the usage of human performance tools and procedures, and an overview of the recent events.

The inspectors determined that the finding was more than minor in accordance with IMC 0612 "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because, if left uncorrected, the performance deficiency could have the potential to lead to a more significant safety concern. In particular, this loss of 125 Volt DC event could have become a more significant event with further complications and plant issues. The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 Initial Screening and Characterization of Findings," Table 4a, for the Initiating Events Cornerstone, dated January 10, 2008. The inspectors answered "No" to the Transient Initiator question of contributing to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available and screened the finding as having very low safety significance (Green). The finding had a cross cutting aspect in the area of human performance related to the cross cutting component of Work Practices, in that the licensee communicates human error prevention techniques, such as peer checking, and that these techniques are used commensurate with the risk of the assigned task, such that work activities are performed safely (H.4(a)).

Inspection Report# : [2011014](#) (pdf)

**G**

**Significance:** Aug 25, 2011

Identified By: NRC

Item Type: FIN Finding

**Failure to Adequately Evaluate the Enclosure Installed Over the 1F/1G Buses.**

The inspectors identified a finding of very low safety significance involving the licensee's failure to adequately evaluate the enclosure installed over the 1F/1G Buses to be in compliance with all applicable requirements. Specifically, the licensee did not ensure that the new enclosure would not affect start-up transformer 1-2 during a design basis wind event. There were no violations of NRC regulations identified. This finding was entered into the licensee's corrective action program, which resulted in replacing inadequate eye-bolts.

The performance deficiency was determined to be more than minor because it was associated with the Initiating Events Cornerstone attribute of transient initiator (loss of offsite power) and affected the cornerstone objective to limit the likelihood of those events that upset plant stability. Specifically, there was reasonable doubt as to whether the enclosure could have withstood a design wind event, which would have increased the probability that severe weather could have affected the ability of startup transformer 1 2 to provide offsite power. The finding screened as very low safety significance (Green) because the transient initiator would not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. This finding has a cross-cutting aspect in human performance because the licensee did not ensure reviews of safety significant decisions to verify the validity of the underlying assumptions or identify possible unintended consequences. Specifically, the licensee's design reviews for the 1F/1G Bus enclosure modification did not address the potential impact on start-up transformer 1-2 if the enclosure failed during a design basis wind event. [H.1(b)]. (Section 1R21.5.b.(1)).

Inspection Report# : [2011009](#) (pdf)

**G**

**Significance:** Aug 25, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Procedures Were Not Appropriate to Address Gas Accumulation Issues.**

The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to establish appropriate procedures for managing gas accumulation issues. Specifically, three examples were identified as follows: (1) Procedure ESSO 10 did not ensure that identified voids would be successfully removed by flushing; (2) Procedure SOP-3 did not specify a maximum flowrate which analyzed net positive suction head and potential air entrainment due to vortexing during reduced inventory operations when in shutdown cooling; and (3) Procedure SOP 3 did not contain instructions to vent the steam that could form at the low pressure safety injection discharge piping following a shutdown loss of cooling accident prior to system initiation. This finding was entered into the licensee's corrective action program.

The performance deficiency was associated with the Initiating Events and Mitigating System Cornerstones, and determined to be more than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. The finding screened as of very low safety significance (Green) because: (1) Procedure ESSO 10 was a deficiency confirmed not to result in loss of operability in that a review of recent periodic gas monitoring results determined that the affected locations were full of water; (2) Procedure SOP 3 associated with reduced inventory operations did not meet any of the criteria that required a Phase II or III analysis in that it did not rise to the level that there was an increase in the likelihood of a loss of shutdown cooling; and (3) Procedure SOP 3 associated with the steam void formation did not require a quantitative assessment because it met each item for the core heat removal, inventory control, power availability, containment control, and reactivity guidelines. This finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee did not thoroughly evaluate relevant external operating experience. Specifically, the licensee's evaluation of gas related issues in response to Generic Letter 2008 01 was deficient in that, the licensee did not identify two potential gas sources, vortexing during reduced inventory and flashing following a shutdown loss of coolant accident, and did not address the minimum flowrate required to remove gas in piping when flushing. [P.2(a)]. (Section 40A5.1c.(2))

Inspection Report# : [2011009](#) (pdf)

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## Mitigating Systems

**Significance:**  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Design Margins for Evaluation of Leaking SIRWT Nozzles**

The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control" for the licensee's failure to adequately evaluate leaking Safety Injection and Refueling Water Tank (SIRWT) nozzles during the application of American Society of Mechanical Engineers (ASME) Code Case N 705. During the April May 2012 refueling outage, the SIRWT was drained for inspection and repairs and a deformed nozzle was sealed off, as it was believed to be the potential source of pre outage leakage. Upon refill, leakage was observed under a different section of the roof upon which the SIRWT rests, indicating a potentially new leak. The licensee employed ASME Code Case N 705 to demonstrate tank operability given the existing leakage and set an upper limit for allowed leakage. Inspector review of the approved evaluation identified certain Code Case criteria that were not discussed, namely, the residual weld stresses and seismic sloshing stresses. After discussions with the inspectors, the licensee developed residual weld stress values for their evaluation and discussed potential effects of seismic sloshing. The result was a reduction in allowed leakage from 130 gallons per day (gpd) to 34.8 gpd. The licensee entered the issue in their CAP as CR PLP 2012 04245 and CR PLP 2012 03732.

The finding was determined to be more than minor because the finding, if left uncorrected, could become a more significant safety concern. The inspectors utilized examples 3j and 3k in IMC 0612, Appendix E, "Examples of Minor Issues," to inform this determination. Omission of Code-Case-required parameters in the approved evaluation led to reasonable doubt on the operability of the system had the licensee ascended to a mode requiring SIRWT operability. Further analysis was also required by the licensee. Absent NRC identification, the failure to adequately evaluate the leaking SIRWT nozzles could have allowed unstable cracks to remain in service. Unstable nozzle cracks could propagate and allow unacceptable leakage from the SIRWT resulting in loss of inventory and increase the risk for insufficient core cooling for post LOCA conditions. This finding impacted the Mitigating Systems Cornerstone

attribute of Equipment Performance (reliability). The finding adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Because the licensee promptly corrected this issue and lowered the amount of allowed leakage, the inspectors answered "No" to all of the worksheet questions identified in IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 Initial Screening and Characterization of Findings," Table 4a for the Mitigating Systems Cornerstone. The correct leakage limit was in place prior to the required time the tank needed to be operable. Therefore, this finding screened as having very low safety significance (Green). This finding has a cross cutting aspect in the area of Human Performance for the work practices component. The licensee did not provide adequate supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported (H.4.c). Specifically, the licensee failed to ensure that the vendor evaluation to demonstrate SIRWT nozzle integrity with through wall cracks included consideration of residual weld stresses and seismic sloshing stresses. The inspectors determined the primary cause of this finding based upon discussions with the licensee's engineering staff.

Inspection Report# : [2012003](#) (pdf)

**Significance:** N/A Feb 17, 2012

Identified By: NRC

Item Type: FIN Finding

### **Biennial PI&R Inspection Assessment**

On the basis of the sample selected for review, the team concluded that implementation of the Corrective Action Program (CAP) at Palisades was adequate, but only marginally effective. The inspectors did note an overall decline in performance since the last inspection. The licensee had a low threshold for identifying problems and entering them in the CAP. Items entered into the CAP were screened and prioritized in a timely manner using established criteria and were properly evaluated commensurate with their safety significance. In general, causes for issues were adequately determined and corrective actions were generally implemented in a timely manner, commensurate with the safety significance. However, frequent NRC input or self-revealing events identified issues that the plant staff failed to adequately address. In one case, a significant condition adverse to quality was not adequately addressed and this resulted in recurrence of a failure of a safety-related service water pump. Another self-revealed finding related to the failure to run on an auxiliary feedwater pump, of low to moderate safety significance, was not adequately addressed initially. NRC comments, and later review by the licensee, led to the development of a root cause analysis which revealed other significant shortfalls in the maintenance of the turbine-driven auxiliary feedwater pump. This was a finding of low to moderate safety significance. The team noted that the licensee effectively reviewed operating experience for applicability to station activities. Audits and self assessments were determined to be effectively performed at an appropriate level to identify deficiencies. Based on the surveys conducted by the licensee, interviews conducted during the inspection, and review of the employee concerns program, employee freedom to raise nuclear safety concerns without fear of reprisal was evident.

Inspection Report# : [2012007](#) (pdf)

**Significance:** SL-IV Oct 28, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Report a 10 CFR 50.72 Notification for an 8-hour Non-Emergency Report.**

A Severity Level (SL) IV non cited violation of 10 CFR 50.72(b)(3)(ii)(B) was identified by the inspectors for the failure to notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any event or condition that results in the nuclear power plant being in an unanalyzed condition that significantly degrades plant safety. Specifically, the licensee failed to report on September 26, 2011, within eight hours an Appendix R noncompliance that was identified in DC shunt trip Breakers 72 01 and 72 02 for the 125 Volt DC system following the reactor trip that occurred on September 25, 2011. The licensee's preliminary analysis demonstrated that if a shunt trip breaker automatically opened due to fire induced fault currents, then the licensee's Appendix R credited equipment may have been lost unexpectedly, an unanalyzed condition that significantly degrades plant safety. This issue was documented in the licensee's corrective action program as CR PLP 2011 05263 and at the end of the special inspection, the licensee continued to perform a causal evaluation in order to develop corrective actions. As a remedial corrective action, the licensee made the required event notification in Event Notification Number 47322 on October 5, 2011.

The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor

Inspection Reports," Appendix B, "Issue Screening," dated December 24, 2009, Block 7, Figure 2, because reporting failure violations are considered to be violations that potentially impact the regulatory process and are dispositioned using traditional enforcement. In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, this violation was categorized as Severity Level IV because the underlying technical issue was evaluated by the SDP and determined to be of very low safety significance. In addition, NRC Enforcement Policy, dated July 12, 2011, Section 6.9.d.9, states, in part, that an example of an SL IV violation is the licensee's failure to make a report required by 10 CFR 50.72.

The associated Performance Deficiency is tracked as item 2011-014-08.

Inspection Report# : [2011014](#) (pdf)

**G**

**Significance:** Oct 28, 2011

Identified By: NRC

Item Type: FIN Finding

**Failure to Implement Human Performance Tools and to Perform an Infrequently Performed Test or Evolution Brief.**

A finding of very low significance was identified by the inspectors for the licensee's failure to implement Procedure EN HU 102, "Human Performance Tools," which established standards and expectations for the use of specific human performance tools with the goal to improve personnel and plant performance through human error reduction. The inspectors identified that Procedure EN HU 102 was not implemented for the work performed on September 25, 2011, to install a temporary modification and to address a non conforming condition associated with Panel D11 2. Implementation of the procedure for Panel D11 2 scheduled work required the use of Procedure EN OP 116, "Infrequently Performed Tests or Evolutions," and performance of an infrequently performed tests and evolution pre job brief, which the inspectors determined was not performed for the work on September 25, 2011. No violation of NRC requirements occurred. The licensee documented this condition in its corrective action program as CR PLP 2011 04822 and CR PLP 2011 04981. At the end of this inspection, the licensee continued to perform a root cause evaluation to determine the causes of the event and develop corrective actions.

The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated December 24, 2009, because it was associated with the Procedure Quality and Human Performance attributes of the Mitigating Systems Cornerstone. This adversely affected the cornerstone objective, in that, the failure to utilize human error reduction tools impacted the availability, reliability and capability of systems that responded to initiating events to prevent undesirable consequences. Specifically, the failure to utilize human performance tools directly contributed to the inadequate work planning and preparation scheduled for Panel D11 2 on September 25, 2011. The inspectors determined that the finding could be evaluated using the significance determination process in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 Initial Screening and Characterization of Findings," Table 4a, for the Mitigating Systems Cornerstone, dated January 10, 2008. The inspectors answered "No" to the Mitigating Systems questions and screened the finding as having very low safety significance (Green). The finding has a cross cutting aspect in the area of human performance, work practices, because the licensee failed to ensure personnel work practices supported human performance through defining and effectively communicating expectations regarding procedural compliance coincident with plant personnel following procedures. Specifically, the licensee personnel failed to reference or implement procedures with human performance tools, which, if implemented, would have required an IPTE brief for the work performed on Panel D11 2 on September 25, 2011 (H.4(b)).

Inspection Report# : [2011014](#) (pdf)

**G**

**Significance:** Oct 28, 2011

Identified By: NRC

Item Type: FIN Finding

**Failure to Comply with Work Hour Rules for Non-Covered Workers.**

A finding of very low significance was identified by the inspectors for the licensee's failure to implement Procedure EN FAP OM 006, "Working Hour Limits for Non Covered Workers," which established standard fleet guidance for working hour limits for Entergy non covered (not covered under 10 CFR 26) workers as defined in EN OM 123, "Working Hour Limits." The inspectors identified that at least two non covered managers on the nightshift, involved with the work planning and oversight of troubleshooting repair efforts for Panel D11 2, had not followed the standards

for work hour limits and did not initiate condition reports when the work hour limits were exceeded, as required by Procedure EN FAP OM 006. Specifically, the inspectors identified that the Duty Station Manager worked approximately 25 consecutive hours from September 23 through September 24, and greater than 72 hours in a 7 day period. The electrical superintendent exceeded the administrative limits of 16 hours in 24 hour period, 26 hours in 48 hour period, 72 hours in a 7 day period, and greater than a 10 hour break between work periods over a consecutive 19 day period of work. No violation of NRC requirements occurred. The licensee documented this condition in its corrective action program as CR PLP 2011 05095 and CR PLP 2011 05116. At the end of this inspection, the licensee continued to perform an apparent cause evaluation and extent of condition to determine extent of the problem and causes for the performance deficiency in order to develop corrective actions.

The issue affected the Mitigating Systems Cornerstone because the 125 Volt DC system work plan development was overseen by the non covered workers. The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated December 24, 2009, because it revealed weaknesses that, if left uncorrected, could lead to more significant safety concerns associated with overseeing work on safety related equipment. In addition, the inspectors concluded that the failure to implement working hour limitations for non covered workers in Procedure EN FAP OM 006 was more than an isolated instance. The inspectors and Senior Reactor Analyst concluded that the use of IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," was the appropriate method for determining the significance. In accordance with IMC 0609, Appendix M, management review of this issue determined that this finding was of very low safety significance since the performance deficiency did not directly contribute to the event, as the non covered workers were involved with the planning and not actual implementation of the work performed on September 25, 2011, on Panel D11 2. The finding has a cross cutting aspect in the area of human performance, resources, because the licensee failed to ensure that personnel and other resources were available and adequate to assure nuclear safety; specifically, sufficient qualified personnel were available to maintain work hours within working hour guidelines (H.2 (b)).

Inspection Report# : [2011014](#) (pdf)

**Significance:**  Oct 28, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish a Procedure for the Loss of a DC Bus and the Simultaneous Loss of Two Preferred AC Power Sources.**

A finding of very low safety significance and associated NCV of TS 5.4.1 was identified by the inspectors for the failure to establish a procedure for combating emergencies and other significant events as required by RG 1.33, Section 6. Specifically, Section 6 states, in part, that the loss of electrical power (and/or degraded power sources) is a safety related activity that should be covered by written procedures, and TS 5.4.1 required, in part, that written procedures be established, implemented, and maintained to cover the activities in RG 1.33. The design and licensing basis of the plant includes the loss of a single train of DC power. Although the site has multiple procedures to address the loss of the DC system and individual preferred AC sources, the procedures did not integrate to provide a response that minimized challenges to plant safety. The site has three separate procedures that were used in this event for the loss of one DC bus and loss of one preferred AC source (two sources were lost during the event, hence two of these procedures were used); but not one inclusive procedure to cover the loss of both preferred AC sources simultaneously. The procedures that the crew worked through were inadequate to respond in a timely fashion to changing plant conditions caused by the loss of the left train of DC power. This issue was documented in the licensee's corrective action program as CR PLP 2011 06209 and, at the end of the special inspection, the licensee was still performing an evaluation to determine the causes and to develop corrective actions.

The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because the finding was associated with the Mitigating Systems Cornerstone attribute of Procedure Quality, and adversely impacted the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the attribute of procedure quality, areas to measure, lists operating (post event) procedures such as abnormal operating procedures, standard operating procedures, emergency operating procedures, and can include off normal procedures, as being items that should be established and maintained to ensure the cornerstone objective is met. The inspectors determined that the finding could be evaluated using the significance determination process in accordance with IMC

0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 Initial Screening and Characterization of Findings," Table 4a, for the Mitigating Systems Cornerstone, dated January 10, 2008. The inspectors answered "No" to the Mitigating Systems questions and screened the finding as having very low safety significance (Green). The finding does not have an associated cross cutting aspect since the last known operating experience for a loss of the 125 Volt DC system occurred in 1981 at the Millstone Nuclear Generating Station.

Inspection Report# : [2011014](#) (pdf)

**G**

**Significance:** Oct 28, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Perform an Adequate Operability Evaluation.**

A finding of very low safety significance and associated non cited violation of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the failure to implement a procedure for an activity affecting quality. Procedure EN OP 104, "Operability Determination Process," required an assessment of the operability for structures, systems, and components (SSCs) when degraded or non conforming conditions were identified and establishment of compensatory measures were needed to, "ensure, maintain, and enhance future operability." Specifically, the inspectors identified that the operability evaluation for the 125 Volt DC system, completed on September 30, 2011, did not contain two compensatory measures necessary to ensure the operability of the system. It was also identified that the 50.59 pre screening (process applicability determination) for the temporary modification, which was also a compensatory measure for the operability evaluation, was not clearly written and did not adequately describe the evaluation of the modification or the bases for this decision. This issue was documented in the licensee's corrective action program as CR PLP 2011 04988 and CR PLP 2011 04965 and at the end of the special inspection the licensee was still performing an evaluation to determine the causes and to develop corrective actions. The licensee's remedial corrective actions included revising the 50.59 pre screening to clearly address the effect of the compensatory measures on other aspects of the facility, prohibiting maintenance on the energized 125 Volt DC busses, and issuing additional site guidance for the operation of battery chargers.

The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because the finding was associated with the Mitigating Systems cornerstone attribute of Equipment Performance, and adversely impacted the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the attribute of equipment performance impacted the availability and reliability of the 125 Volt DC system. The inspectors determined that the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 Initial Screening and Characterization of Findings," Table 4a, for the Mitigating Systems Cornerstone, dated January 10, 2008. The inspectors answered "No" to the Mitigating Systems questions and screened the finding as having very low safety significance (Green). The finding had a cross cutting aspect in the area of human performance related to the cross cutting component of Decision Making, because the licensee did not adequately conduct an effectiveness review of a safety significant decision to verify the validity of the underlying assumptions and identify possible unintended consequences, as necessary (H.1(b)).

Inspection Report# : [2011014](#) (pdf)

**G**

**Significance:** Oct 14, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Maintain Design and Procurement Control of the 125-Volt DC System.**

A self revealed finding of very low safety significance (Green) and associated NCV of Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," and Criterion IV, "Procurement Document Control," was identified for the licensee's failure to establish measures to ensure that the applicable regulatory requirements and design bases were correctly translated into specifications and instructions. In addition, the licensee failed to establish measures to assure that the applicable regulatory requirements and design bases, which were necessary to assure adequate quality, were suitably included or referenced in the documents for procurement of equipment. Specifically, 125 Volt DC Breakers 72 01 and 72 02 were purchased and installed with thermal overloads and instantaneous trips enabled. The design

basis stated that the breakers were non automatic and only actuated manually. As a result, on September 25, 2011, when an electrical fault occurred on Panel D11 2, the left train 125 Volt DC bus was lost, because the instantaneous trip device on Breaker 72 01 automatically actuated, propagating the fault through the bus, which resulted in a reactor and turbine trip, and plant transient. This issue was documented in the licensee's corrective action program as CR PLP 2011 4835 and CR PLP 2011 4965 and at the end of the special inspection the licensee was still performing an evaluation to determine the causes and to develop corrective actions. As a remedial corrective action prior to plant startup, the licensee implemented a temporary modification to increase the breaker instantaneous trips and performed an operability evaluation, with compensatory actions for the 125 Volt DC system.

The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated December 24, 2009, because it was associated with the Mitigating Systems Cornerstone attribute of Equipment Performance, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, lack of coordination between Panel D11 2 protective device (FUZ/D11 2) and Breaker 72 01 resulted in the loss of the left 125 Volt DC bus and two preferred AC power sources and complicated plant shutdown during the reactor trip on September 25, 2011, when an electrical fault occurred while working on Panel D11 2. The risk assessment associated with the event on September 25, and the complication caused by the breaker opening, is evaluated and described in the preliminary Yellow AV. The inspectors determined the finding, related to the design deficiency, could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 Initial Screening and Characterization of findings," Table 4a for the Mitigating Systems cornerstone. The inspectors answered "Yes" to Question 1 in Column 2. Therefore, the inspectors determined that this finding could be screened as having very low safety significance (Green), because the finding was a design deficiency confirmed not to result in loss of operability or functionality of a system safety function. In addition, the inspectors also determined that the finding affected the fire protection safe shutdown strategies. Therefore, screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process," was required. Based on review of IMC 0609, the inspectors concluded that the finding represented a moderate degradation within the post fire safe shutdown category and performed a Phase 2 analysis. Based on the licensee's evaluation for the loads the inspectors determined that this finding screened as having very low safety significance (Green) per Task 2.3.5, screening check for lack of fire ignition sources and fire scenarios. The inspectors did not identify a cross cutting aspect associated with this finding because Breakers 72 01 and 72 02 were procured and installed in 1981 and therefore, the finding was not reflective of licensee's current performance.

The associated Traditional Enforcement Item is tracked as Item 2011-014-01.  
Inspection Report# : [2011014](#) (*pdf*)

**Significance:** **W** Oct 05, 2011

Identified By: NRC

Item Type: VIO Violation

### **Improper Lubrication of Turbine Driven Auxiliary Feedwater Pump Linkages**

A self-revealed finding of low to moderate safety significance and associated Apparent Violation (AV) of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures and Drawings," occurred for the licensee's failure to follow procedures for lubrication of linkages on the TDAFW pump overspeed trip device. Specifically, during a maintenance window the licensee greased a knife edge on the trip mechanism. The greasing of the knife edge contributed to a trip of the pump on May 10, 2011, as well as rendering the pump inoperable for a period of time in excess of what is allowed by Technical Specifications (TSs). After identification of the grease, the licensee removed the grease, restored the pump to an operable status, and initiated condition report (CR) PLP-2011-02350.

The inspectors concluded that the finding was more than minor because it was associated with the equipment reliability and performance attributes of the Mitigating Systems Cornerstone. In addition, this performance deficiency impacted the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the TDAFW pump could not reliably perform its mitigating function. The inspectors performed a Phase 1 SDP evaluation and determined that a Phase 2 evaluation was required because this finding represented an actual loss of safety function of a single train of equipment for greater than the TS allowed outage time. The inspectors performed a Phase 2 evaluation using the pre-solved SDP worksheets for Palisades and determined that this finding screened as Yellow. In order to realistically assess the significance, IMC

0609 required a Phase 3 SDP evaluation. Based on the Probabilistic Risk Analysis conducted by the Senior Reactor Analyst (SRA), a Significance and Enforcement Review Panel reached a preliminary determination the finding was of low to moderate (White) safety significance. The finding occurred, in part, due to a worker making a change to a work instruction without following the process for procedure revisions. Therefore, the inspectors assigned a cross cutting aspect of H.1(a), risk significant decisions using a systematic process. (Section 4OA3)

Inspection Report# : [2011013](#) (pdf)

Inspection Report# : [2011017](#) (pdf)

Inspection Report# : [2012010](#) (pdf)

**Significance:**  Sep 30, 2011

Identified By: NRC

Item Type: FIN Finding

### **Failure to Maintain SAMGs**

The inspectors identified a finding of very low safety significance for the licensee's failure to review and update the Severe Accident Management Guidelines (SAMGs) as required by the site's procedure review process for SAMG's. Specifically, the SAMG writers' guide and site procedures required periodic or biennial reviews of the SAMGs; however, no reviews had been performed since 2005. In addition, the licensee procedures for design changes require that design changes identify impacts on SAMGs. Because the SAMGs are not required by regulations, the inspectors determined that the failure to update the SAMGs was a finding without an associated violation. The licensee has entered the condition into their corrective action program (CAP), and performed revisions, and established electronic accessibility to the SAMGs.

The inspectors concluded that the failure to review and update the SAMGs as required by the SAMG writers' guide and licensee procedures was a performance deficiency that warranted further evaluations through the SDP. The finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated December 24, 2009, because, the performance deficiency is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and adversely affected the objective to ensure the reliability of systems to respond to initiating events. In addition, the SAMGs are procedures used to mitigate the effects of beyond design basis accidents and, if left uncorrected, would complicate the licensee's response to a severe accident and have the potential to lead to a more significant safety concern. The inspectors concluded that the finding was not more than very low safety significance because it did not degrade any of the mitigating system functions listed in the phase 1 screen. No cross cutting issue existed due to the age of the issue.

Inspection Report# : [2011004](#) (pdf)

**Significance:**  Aug 25, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

### **GL 2008-01 Design Reviews Did Not Adequately Assess the Potential to Accumulate Voids Within Piping Systems.**

The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to adequately review the design of emergency core cooling and containment spray systems with respect to the potential to accumulate voids. Specifically, the design reviews did not consider system interactions, evaluate the acceptability of locations believed to be inaccessible for periodic monitoring, and ensure the validity of the assumption that some high point vents were periodically used to ensure that some locations were full of water when excluding them from periodic monitoring. This finding was entered into the licensee's corrective action program.

The performance deficiency was associated with Mitigating System Cornerstone and determined to be more than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. The finding screened as of very low safety significance (Green) because the finding involved a design or qualification deficiency that did not result in a loss of operability. Specifically, based on a historical review of recent maintenance activities, current process parameters, and, in some locations, ultrasonic examinations, the licensee's operability evaluation concluded there were no adverse voids at these locations. This finding had a cross-cutting aspect in the area of human

performance because the licensee did not ensure supervisory oversight of work activities associated with the Generic Letter 2008 01 design reviews such that nuclear safety is supported. Specifically, oversight did not ensure that the contractor's design reviews considered plant specific information such as system interactions and at power operations. [H.4(c)]. (Section 40A5.1c.(1))  
Inspection Report# : [2011009](#) (pdf)

**G**

**Significance:** Aug 25, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Void Size Acceptance Criteria is Non-Conservative.**

The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to develop conservative void size acceptance criteria. Specifically, the void size acceptance criteria was based on an incorrect safety injection and refueling water base tank elevation and a 10 percent degradation of the design rated flowrates of the pumps. When the correct base tank elevation and lower allowable pump flowrates were considered, the void acceptance criteria were non-conservative. This finding was entered into the licensee's corrective action program.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating System Cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as of very low safety significance (Green) because the finding was a design or qualification deficiency confirmed not to result in loss of operability. Specifically, a review of recent periodic gas monitoring results determined that no voids were present at the suction side of the affected pumps. This finding had a cross-cutting aspect in the area of human performance because the licensee did not ensure supervisory oversight of work activities associated with actions related to Generic Letter 2008 01 such that nuclear safety is supported. Specifically, oversight did not ensure that the contractor's development of void acceptance criteria relied on limiting design values. [H.4(c)]. (Section 40A5.1c.(3))  
Inspection Report# : [2011009](#) (pdf)

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## Barrier Integrity

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## Emergency Preparedness

**G**

**Significance:** Sep 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement the Approved Emergency Classification Scheme**

The inspectors identified a finding of very low safety significance with an associated NCV of 10 CFR 50.47(b)(4) for the failure to properly implement the approved Emergency Action Level (EAL) classification scheme. Specifically, the licensee implemented the EAL classification scheme such that an Alert (one occurrence) would not be declared, as it should be, related to degraded performance of safety related equipment as a result of flooding. The licensee has entered the condition into their CAP and conducted training to implement appropriate criteria for declaration of subject EAL.

The inspectors concluded that the failure to implement a standard emergency classification scheme emergency planning drill was a performance deficiency that warranted a significance determination using the SDP. The issue was more than minor because it is associated with the Emergency Response Organization performance attribute of the Emergency Preparedness Cornerstone, and adversely affected the cornerstone objective to ensure that the capability of implementing adequate measures to protect the health and safety of the public in the event of a radiological

emergency is maintained by the licensee. The issue was of very low safety significance (Green) because it met the example for a Green finding using IMC 0609 Appendix B, "Emergency Preparedness SDP" under Section 4.4 and did not meet the threshold for a greater than green finding in Appendix B since there was no loss or degradation of a Risk-Significant Planning Standard. The finding had an associated cross cutting aspect under the area of human performance in the resources component. Specifically, the licensee did not provide adequate training of personnel.

Inspection Report# : [2011004](#) (pdf)

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## Occupational Radiation Safety

**Significance:**  Sep 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure to Control Dose to Worker in Locked High Radiation Area**

A finding of very low safety significance and an NCV was self revealed following the licensee's failure to control dose to workers as specified in the radiation work permit (RWP) and as required by Technical Specification (TS) 5.7.2. Specifically, inadequacies in the licensee's process for performing remote dose monitoring, resulted in workers exceeding their authorized RWP dose limits. Therefore the dose was not controlled as required by TS. The licensee has entered the condition into their corrective action program (CAP). Corrective actions included revising procedures for remote radiological job coverage for workers wearing multiple dosimeters.

The finding was more than minor because it is addressed in Example 6.h of IMC 0612 Appendix E, "Examples of Minor Issues." Additionally, the inspectors determined that the finding was more than minor because it is associated with the program and process attribute, and affected the Occupational Radiation Safety Cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operations. This finding was assessed using IMC 0609, Attachment C for the Occupational Radiation Safety SDP and determined to be of very low safety significance (Green) because this failure did not involve as low as is reasonably achievable (ALARA) planning or work controls; did not result in an overexposure or substantial potential for overexposure and there was not a compromised ability to assess dose. The finding was caused by vague procedural guidance. Consequently, this finding had a cross cutting aspect in the area of human performance resources. Specifically, the licensee ensures that resources are available and adequate to maintain complete, accurate, and up to date procedures.

Inspection Report# : [2011004](#) (pdf)

**Significance:**  Sep 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Unauthorized Entry to High Radiation Area**

A self revealed finding of very low safety significance and associated NCV of TS 5.7.1, occurred when an individual entered a high radiation area without proper authorization. The individual was not knowledgeable of dose rates in the area. The licensee has entered the condition into their CAP. Corrective actions included counseling of the worker and the error was discussed with all Nuclear Plant Operators at shift turnover.

The finding was more than minor because it is addressed in Example 6.h of IMC 0612 Appendix E, "Examples of Minor Issues." Additionally, the inspectors determined that the finding was more than minor because it is associated with the program and process attribute, and affected the Occupational Radiation Safety Cornerstone objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operations. This finding was assessed using IMC 0609, Attachment C for the Occupational Radiation Safety SDP and determined to be of very low safety significance (Green) because this failure did not involve ALARA Planning or Work controls; did not result in an overexposure or substantial potential for overexposure and there was not a compromised ability to assess dose. The finding was caused by the worker that did

not ask for a peer check before entering the posted high radiation area. Consequently, this finding had a cross cutting aspect in the area of human performance work practices. Specifically, human error prevention techniques, such as self and peer checking are used.

Inspection Report# : [2011004](#) (*pdf*)

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## Public Radiation Safety

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## Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

Last modified : September 12, 2012