

Palisades

1Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Take Corrective Action to Prevent Recurrence of Control Rod Drive Mechanism Pressure Boundary Leakage

A self-revealing finding of very low safety significance (Green) with associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, and Technical Specification (TS) 3.4.13, Primary Coolant System (PCS) Operational Leakage, was identified for failure to take corrective actions to prevent recurrence of Control Rod Drive Mechanism (CRDM) cracking and leakage, a significant condition adverse to quality (SCAQ). Specifically, for Criterion XVI the licensee failed to include the internal CRDM housing weld build-up area within the scope of corrective actions taken for a 2001 CRDM through wall leak on CRDM-21, caused by transgranular stress corrosion cracking (TGSCC). Subsequently, a through wall leak recurred in the weld build-up area on CRDM-24 in 2012 due to TGSCC. As a result, the licensee operated with PCS pressure boundary leakage, which is not allowed by TS 3.4.13. Further, because the licensee was not aware that the leakage was PCS pressure boundary leakage, the licensee did not implement the associated TS action statement. The licensee replaced CRDM-24 upper housing and entered the issue into their corrective action program as CR PLP 2013-01134. Additional corrective actions are described in NRC Inspection Report 05000255/2012012.

The inspectors determined that this issue was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because it was associated with the Initiating Events Cornerstone attribute of equipment performance and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability. Specifically, the licensee did not take adequate corrective actions to prevent recurrence of leakage in CRDM housings, which represents pressure boundary leakage. The inspectors determined this finding was of very low safety significance (Green) because the leak would not have exceeded the reactor coolant system leak rate for a small LOCA and could not have likely affected other systems used to mitigate a LOCA resulting in a total loss of their function. Specifically, the slow rate of change for leakage for TGSCC in type 316 stainless steel will experience leakage rates well below a small break LOCA, which would be observed through the crack, alerting operators to take action to shut down the plant prior to experiencing a component rupture. The cause of this finding, non-conservative decision making, occurred over 10 years ago and is well outside of the nominal 3 year period in IMC 0612 for cross-cutting aspects. Therefore, this is not indicative of current performance, because no other opportunities to identify the issue occurred during the previous 3-year period. However more recently, the licensee exhibited non-conservative decision making with respect to addressing the potential for CRDM housing cracking and leakage during the recent root cause (Section 4OA2.4 (b.2) of this report), resulting in another finding. This cross-cutting aspect will be captured through the other finding.

Inspection Report# : [2013002](#) (*pdf*)

Significance: G Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Address the Generic Implications of the Cracking Identified in Control Rod Drive

Mechanism- 24

The inspectors identified a finding of very low safety significance (Green) with an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, for the licensee's failure to accomplish quality activities in accordance with the prescribed procedures. Specifically, the licensee failed to adequately evaluate and document the generic implications of the cause of the 2012 cracking identified in Control Rod Drive Mechanism (CRDM)-24 in accordance with a quality procedure, Procedure, EN-LI-118, "Root Cause Evaluation." This issue was entered into the licensee's Corrective Action Program (CAP) under CR-PLP-2013-01500. Subsequently, the licensee decided to revise the inspection plan to add additional corrective actions to inspect a sample of welds No. 3 and No. 4 for transgranular stress corrosion cracking (TGSCC) during the upcoming refueling outage.

The inspectors determined that this issue was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, absent NRC identification, the licensee would not have completed further evaluations or inspections of CRDM housing welds, which could have resulted in additional CRDM housing failure and leakage by TGSCC. In accordance with Table 2, "Cornerstones Affected by Degraded Condition or Programmatic Weakness," of IMC 609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the finding was associated with the Initiating Events Cornerstone because the failure of a CRDM housing is a Primary System Loss of Cooling Accident (LOCA) initiator contributor. Using Exhibit 1, "Initiating Events Screening Questions," in IMC 0609, Attachment A, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined this finding was of very low safety significance because the leak would not exceed the reactor coolant system leak rate for a small LOCA and would not have likely affected other systems used to mitigate a LOCA resulting in a total loss of their function. Specifically, the slow rate of change for leakage for TGSCC in type 316 stainless steel will experience leakage rates well below a small break LOCA, which would be observed through the crack, alerting operators to take action to shut down the plant prior to experiencing a component rupture. The inspectors determined that the primary cause of the failure to adequately consider welds No. 3 and No. 4 in the generic implications section of the root cause report (RCR) related to the decision making cross-cutting component in the human performance area because licensee staff did not use conservative assumptions in decision making. Specifically, the licensee did not use conservative assumptions when excluding welds No. 3 and No. 4 as being susceptible to TGSCC when there was not enough information to exclude them from consideration.

Inspection Report# : [2013002](#) (*pdf*)

Significance: G Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Immediate Operability Determination

The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR 50 Appendix B, Criterion V, for the failure to perform an immediate operability determination in accordance with EN OP 104, Operability Determination Process. After discovering a non isolable steam leak on a main steam header drain valve (an American Society of Mechanical Engineers (ASME) Class 2 system) at approximately 2:30 a.m., the licensee failed to perform the steps specified in EN-OP-104 to expeditiously evaluate and to document a basis for operability. In addition, EN-OP-104 required input from engineering to be obtained for an ASME Class 2 thru wall leak. However, the night-shift operators did not obtain input from engineering and did not document the basis for operability. After day shift took over in the morning around 6:30 am, engineering and management were contacted and more rigorous efforts to assess operability commenced. The licensee subsequently declared the associated primary coolant system (PCS) loop, which requires an operable steam generator, to be inoperable at 11:15 am (approximately 9 hours after the condition was initially documented) and shut down the plant to repair the leak. The inspectors determined that not completing an immediate determination in accordance with EN OP 104 caused an unnecessary delay in commencing a plant shutdown to repair the non-isolable leak. The licensee entered this issue into their corrective action program as CR PLP 2013 00158.

The issue was determined to be greater than minor in accordance with IMC 0612, Appendix B, because if left uncorrected, it could lead to a more significant safety concern. Specifically, the failure to perform an immediate operability determination when assessing safety related components, including a delay in requesting assistance, could lead to more significant issues. The performance deficiency also affected the Initiating Events cornerstone attribute of Equipment Performance, adversely impacting the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The issue was determined to be of very low safety significance (Green) because it did not cause a reactor trip AND a loss of accident mitigation equipment. The finding had an associated cross cutting aspect in the decision making component of the human performance area because the night-shift operators did not obtain interdisciplinary input and reviews on the safety-significant operability decision (H.1.a).

Inspection Report# : [2012005](#) (*pdf*)

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to Appropriately Implement Procedure, "Working Hour Limits for Non-Covered Workers."

A finding of very low safety significance was identified by the inspectors for the programmatic failure to appropriately implement procedure, EN FAP OM 006, "Working Hour Limits for Non Covered Workers." Two non covered supervisors and six individual contributors, performing work or overseeing work on a safety related component, did not follow the procedural requirements of obtaining supervisor approval prior to exceeding working hour limits, document excess work hours in the payroll system, or initiate a condition report in a timely manner. An extent of condition review identified two additional instances of individuals, one contractor and one plant employee, not obtaining prior approval to exceed work hour limits nor completing the appropriate documentation. No violation of regulatory requirements occurred since the performance deficiency involved workers not covered by 10 CFR 26.205 through 26.209, which defines the work hour limitations and exceptions for covered workers. The licensee documented the programmatic weaknesses associated with the use of EN FAP OM 006 in their corrective action program. The "Working Hour Limits for Non Covered Workers" procedure was revised to clarify when and by whom condition reports should be written when working hour limits are to be exceeded, as well as, who should write the report.

The finding was more than minor in accordance with IMC 0612, Appendix B, because if left uncorrected, the programmatic failure to appropriately implement work hour limitations for non covered workers could lead to more significant safety concerns associated with fatigue potentially impacting the conduct and oversight of work on safety significant components. The performance deficiency also affected the Initiating Events cornerstone attribute of Equipment Performance, adversely impacting the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the individuals who exceeded the working hour limits for non covered workers were involved in a forced outage for repair and inspection of a control rod drive mechanism housing (part of the primary coolant system pressure boundary) that had a thru wall leak which caused an emergent plant shutdown. Management review of this issue per IMC 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria," effective April 12, 2012, determined that this finding was of very low safety significance, or Green, since the performance deficiency did not directly contribute to the event. The finding had a cross cutting aspect in the area of Problem Identification and Resolution, related to the cross cutting component of Corrective Action Program, in that the licensee thoroughly evaluates problems such that the resolutions address causes and extent of conditions and also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved. In this finding, similar instances of non covered workers not adhering to the standards for work hour limits and not initiating condition reports as required by EN FAP OM 006 were identified in 2011, and the corrective actions for those issues were not sufficient to prevent them from occurring again [P.1(c)].

Inspection Report# : [2012005](#) (pdf)

Significance:  Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Work Management Processes

A self-revealed finding of very low safety significance and two associated NCVs were identified for the failure to conduct maintenance activities in accordance with work management procedures. Two NCVs are being documented in accordance with NRC Enforcement Manual Section 2.13.8 because of a cause-and-effect relationship under one performance deficiency. The first NCV was of Technical Specification (TS) 5.4.1 for failure to implement work management procedures. Specifically, Fix-It-Now (FIN) maintenance personnel working on a control room light indication issue for the safety-related Component Cooling Water Surge Tank Fill Valve, CV 0918, conducted troubleshooting outside of what was originally planned and briefed. Contrary to work management procedures, the required documentation, independent and/or supervisory reviews, nor risk assessment were completed. This deviation resulted in the installation of jumpers from an 115V alternating current (AC) circuit to the safety-related 125V direct current (DC) power system, which actuated various control room alarms, including a ground alarm on the DC system. The second associated NCV, revealed as a result of the first, was for a failure to implement risk management actions as required by 10 CFR 50.65(a)(4), Maintenance Rule. Contrary to this, the licensee failed to perform a quantitative or qualitative risk assessment for work (installation of jumpers) on circuitry associated with CV 0918. Corrective actions consisted of entering the issue into the corrective action program (CAP) and reassigning the FIN team personnel back to their respective maintenance shops and a suspension of all tool pouch maintenance activities pending further investigation. The licensee also held information sharing sessions with the maintenance and operations departments about this incident, the work management process, the standards for implementing this process, and new checklists for use during work planning and authorization.

The finding was more than minor utilizing IMC 0612, Appendix B, because it could reasonably be viewed as a precursor to a significant event and it affected the Initiating Events Cornerstone attribute of Human Performance, adversely impacting the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, planning and conducting work outside work management requirements resulted in a short circuit and various control room alarms. The finding screened as Green 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 in Exhibit 1 of IMC 0609, Appendix A. Additionally, the inspectors screened the finding as Green utilizing an Incremental Core Damage Probability Deficit (ICDPD) calculation performed by a regional Senior Risk Analyst in accordance with IMC 0609, Appendix K, due to the one NCV associated with the Maintenance Rule. The finding had a cross cutting aspect in the area of Human Performance, related to the cross cutting component of Decision Making, in that the licensee uses conservative assumptions in decision making, adopts a requirement to demonstrate that the proposed action is safe in order to proceed, and identifies possible unintended consequences of a decision. In this finding, there were personnel in various departments that could have questioned the continuation of the maintenance with respect to following the work management process (H.1(b)).

Inspection Report# : [2012004](#) (pdf)

Significance:  Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Water Leakage into Control Room During Maintenance

A finding of very low safety significance with an associated NCV of TS 5.4.1 was self-revealed for the failure to implement work management procedures when operators noticed water leakage into the control room from the ceiling during maintenance activities. Water dripped onto the top of a panel near the middle of the control room and inside a

nearby walk-in panel. Metal trays that had been previously established to measure and route known leakage from the Safety Injection and Refueling Water Tank (SIRWT) out of the roof area ('catacombs') above the control room were moved during maintenance. The plant was shut down at the time to repair the SIRWT and the tank was drained. However, a water-cooled drilling device was being used in the roof at the time to 'core-bore' out old nozzles. Contrary to Quality Procedure EN WM 105, Planning, no controls were established to keep the trays in place or otherwise prevent water from accumulating in the catacomb area. As a result, the water from the tool seeped through the catacomb floor while it was in use and wetted equipment in the walk-in panel. Operators immediately halted the work in the roof area and shielded equipment from further wetting. The licensee inspected the affected equipment and determined there were no adverse effects as a result of the wetted equipment. The issue was also entered into the Corrective Action Program (CAP).

The failure to plan work activities in a manner to protect control room equipment from leakage was a performance deficiency warranting further evaluation in the SDP. The issue was determined to be more than minor using IMC 0612, Appendix B, because it impacted the Configuration Control attribute of the Initiating Events Cornerstone, and it adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions. Specifically, wetting of electrical components in the control room challenges the ability of those components to perform their function reliability. The inspectors utilized IMC 0609, Appendix G, "Shutdown Significance Determination Process," to assess the significance of the finding because the plant was shut down at the time. The finding screened as Green, or very-low safety significance, using Checklist 2 of Attachment 1 because with the primary coolant system closed and steam generators available for heat removal, none of the conditions listed as requiring a Phase 2 or 3 analysis applied and all shutdown safety functions were maintained. The finding had an associated cross cutting aspect in the Human Performance area, specifically in the Work Control component. The licensee did not coordinate work activities consistent with nuclear safety (H.3(a)). The core-bore work activity did not properly incorporate the job site conditions, risk insights, or the need for compensatory actions. Since there was a known deficiency in the control room boundary regarding the potential for water ingress, appropriate controls should have been outlined in work instructions or exercised over the catch devices themselves to help control the water that was being used in the tank/catacomb area.

Inspection Report# : [2012004](#) (*pdf*)

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:  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*)

Mitigating Systems

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish an Acceptable Component Cooling Water Heat Exchanger Final Test Frequency

The inspectors identified a finding of very low safety significance (Green) and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control", for failure to establish testing to demonstrate the safety-related Component Cooling Water (CCW) heat exchangers would perform satisfactorily in service. Specifically, the licensee failed to demonstrate the heat exchanger's fouling factors would remain acceptable to ensure adequate heat transfer capability prior to changing the inspection, cleaning, eddy current testing, and thermal performance testing frequency to 12 years. The licensee entered this issue into their Corrective Action Program as CR-PLP-2012-05132 and CR-PLP-2013-00544 and implemented actions to revise the inspection, cleaning, testing, and maintenance frequencies to less than 5 years.

The issue was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability reliability and capability of systems needed to respond to initiating events to prevent undesired consequences. Specifically, the inappropriate test frequency affected the licensees' ability to ensure the CCW heat exchangers were available and capable to reliably perform as expected. The finding screened as of very low safety significance (Green) because the inadequate test program was not a design deficiency and did not result in a loss of system or component function. This finding has a cross-cutting aspect in the area of human performance, decision making because the licensee did not use conservative decision making and did not conduct effectiveness reviews of safety significant decisions to verify the validity of underlying assumptions, identify possible unintended consequences, or determine how to improve future decisions. Specifically, the licensee failed to use conservative decision-making or verify the validity of underlying assumptions when evaluating the effect that reducing the frequency of testing, inspection, cleaning, and maintenance would have on the CCW heat exchangers.

Inspection Report# : [2013002](#) (pdf)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Work Instructions for Component Cooling Water Heat Exchanger

The inspectors identified a finding of very low safety significance (Green) with an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to properly plan and document work on the safety-related 'A' Component Cooling Water (CCW) heat exchanger during a forced outage to repair leaks in the heat exchanger. Contrary to Criterion V and site implementing procedures EN-DC-115, Engineering Change Process, and EN-WM-105, Planning, the licensee did not ensure that appropriate quantitative or qualitative acceptance criteria for determining that important activities affecting quality were included in the work done to re-plug a population of leaking tubes in the heat exchanger. The licensee changed the work instructions to include the acceptance criteria after questioning by the inspectors. The licensee also interviewed workers to ensure the criteria had been utilized during earlier plug installation. The licensee entered the issue into their Corrective Action Program as CR-PLP-2013-00773 and CR-PLP-2013-00969.

The issue was determined to be greater-than-minor per IMC 0612, Appendix B, "Issue Screening," because if left uncorrected, it could lead to a more significant safety concern. The inspectors' decision was informed by examples 3j and 3k in IMC 0612, Appendix E, "Examples of Minor Issues." The examples refer to an issue not being minor if significant programmatic deficiencies were identified with the issue that could lead to worse errors if left uncorrected. When the issue was first raised by the inspectors, only one of the two critical parameters was initially added to the revised work instructions. Further, two examples of inadequate documentation were identified. A basis for removing steps to check for leaks was not properly documented; and it was not clear from the completed work packages that the engineering acceptance criteria were met. Given these issues, the inspectors determined the threshold for a finding was met. The inspectors concluded the finding adversely impacted the Mitigating Systems Cornerstone objective and was of very low safety significance (Green) utilizing IMC 0609, "Significance Determination Process." Specifically,

utilizing Exhibit 2 of Appendix A, all questions in Section A were answered 'no'. The finding had an associated cross-cutting aspect in the work control component of the human performance area. Specifically, the licensee did not coordinate work activities by incorporating actions to ensure interdepartmental alignments were made while planning and executing the work to assure plant and human performance

Inspection Report# : [2013002](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Damage to 'A' Auxiliary Feedwater (AFW) Pump Packing During Surveillance Run

A self-revealed finding of very low safety significance (Green) and an associated NCV of 10 CFR 50, Appendix B, Criterion V was identified for the failure to conduct the 'A' Auxiliary Feedwater (AFW) pump technical specification surveillance test in accordance with the prescribed in-service test procedure. Specifically, plant personnel conducting the surveillance test on the 'A' AFW Pump adjusted packing when it was not required per the guidance in the procedure, which caused the pump packing to overheat and start smoking, resulting in unplanned inoperability of the pump. The licensee documented the issue in their corrective action program as CR-PLP-2013-01128 and completed an apparent cause evaluation. Planned corrective actions included revising the in-service test procedure.

The finding was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because it was associated with the Mitigating Systems Cornerstone attribute of human performance and adversely impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, a packing adjustment was made without being required by the procedure, causing the pump to overheat, which resulted in unplanned inoperability of the safety-related and risk significant 'A' AFW pump. The finding had an associated cross cutting aspect in the area of human performance related to the cross cutting component of resources, in that the licensee ensures plant personnel have complete, accurate, and up-to-date design documentation, procedures, and work packages. In this finding, the fact that the 'A' AFW pump has a unique packing design was not evident in the procedure being used and was not discussed during the pre-job briefs.

Inspection Report# : [2013002](#) (*pdf*)

Significance:  Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Foreign Material in Safety Injection and Refueling Water Tank (SIRWT)

A finding of very-low safety significance with an associated NCV of TS 5.4.1 was self revealed for failure to implement a maintenance procedure when it was discovered that foreign material had entered the SIRWT during a forced outage to repair the tank. A few days after the tank was refilled, a non-safety-related recirculation pump for the tank failed. The licensee discovered a plastic bag in the pump suction. The licensee entered the issue in their CAP and performed a root cause evaluation. The licensee concluded that inadequate implementation of Quality Procedure EN MA 118, Foreign Material Exclusion, allowed the bag to enter the SIRWT during the refilling of the tank from the upper manway access. Since all Emergency Core Cooling system (ECCS) pumps have their suctions aligned to the SIRWT, the operability of those pumps came into question upon discovery of the bag in the recirculation pump. As a result, the licensee tested all of the pumps to ensure they were operable. There were no abnormalities noted during the test-runs.

The failure to adequately implement EN MA 118, Foreign Material Exclusion, was a performance deficiency warranting further assessment in the SDP. Specifically, a buffer zone was not established around the upper opening to the SIRWT and consideration was not given to the effects of ventilation in the area. Both contributed to the

introduction of foreign material into the tank. Utilizing IMC 0612, Appendix B, the inspectors determined the issue was more than minor because it adversely impacted the Equipment Performance attribute of the Mitigating Systems Cornerstone, whose objective is to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, introduction of foreign material challenged the reliability of all ECCS pumps and necessitated emergent testing to ensure they remained operable. The finding screened as Green, or very low safety significance, utilizing IMC 0609, Appendix A, based on answering ‘no’ to all questions in Section A of Exhibit 2. The inspectors also determined that the finding had an associated cross cutting aspect in the Human Performance area, specifically in the Work Practices component. Based on other examples of poor implementation of the Foreign Material Exclusion (FME) program identified by both the inspectors and licensee; combined with the failure to correct those issues, the inspectors determined that the licensee did not ensure there was adequate supervisory and management oversight of work activities such that nuclear safety was supported.

Inspection Report# : [2012004](#) (pdf)

Significance: G 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)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform Derived Air Concentration (DAC)-Hour Tracking

The inspectors identified a finding of very low safety significance and an associated Non-Cited Violation of Technical Specification 5.4.1. Specifically, the licensee failed to perform Derived Air Concentration (DAC)-Hour tracking for airborne transuranic radioactivity as required by a quality plant procedure, EN-RP-131, "Air Sampling," resulting in untimely internal dose assessments for selected plant workers. The issue was entered in the licensee's corrective action program as CR-PLP-2012-02683. The licensee's immediate corrective actions included re-evaluating the use of site-specific work instructions. Long-term corrective actions included procedure changes and completing the required personnel dose assessments utilizing upper bounding radiological conditions.

The finding is 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. Specifically, not performing DAC-Hour tracking for airborne transuranic radioactivity affected the licensee's ability to assess workers internal exposures in a timely manner and adversely impacted the licensee's ability to monitor, control and limit workers' radiation exposures (committed effective dose equivalent or internal dose). In accordance with IMC 0609 Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined that the finding had very low safety significance (Green) because the finding: (1) did not involve as-low-as-is-reasonably-achievable (ALARA) planning and controls; (2) did not involve a radiological overexposure; (3) there was not a substantial potential for an overexposure; and (4) there was no compromised ability to assess dose. The inspectors determined that the primary cause of this finding was related to a cross-cutting aspect in the area of human performance, resources component, such that the licensee maintains complete, accurate and up-to-date procedures and work packages.

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Public Radiation Safety

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.

Miscellaneous

Last modified : June 04, 2013