

Palisades

4Q/2004 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2004

Identified By: NRC

Item Type: FIN Finding

Condensate Pump Motor Bearing Fire Resulted in Manual Reactor Trip

A finding of very low safety significance was self-revealed on August 31, 2004, when a fire occurred on the lower bearing of the condensate pump P-2B motor. The motor and pump were misaligned during reassembly following maintenance in July 2004 which was not identified when the pump was returned to service. Consequently, the fire was caused by heat that was generated around the bearing due to an overload condition caused by an excessive radial offset between the motor and pump.

This finding was more than minor because it was related to the procedure quality and human performance attributes of the Initiating Events cornerstone and adversely impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Control room operators commenced a rapid downpower in response to the fire and manually tripped the reactor so that the condensate pump motor could be secured. The finding was of very low safety significance because all mitigating systems were available during the event, and the fire was of short duration and was isolated to the motor. No violation of NRC requirements occurred. Planned corrective actions included the development of a written procedure for aligning vertical pumps and motors that specified a method for obtaining alignment data and associated acceptance criteria.

Inspection Report# : [2004012\(pdf\)](#)

Significance:  Dec 31, 2004

Identified By: NRC

Item Type: FIN Finding

Condensate Reject Valve Failed Full Open During Maintenance Activities Resulted In Operator Action to Mitigate Transient

A finding of very low safety significance was self-revealed when condensate reject valve CV-0731 unexpectedly opened during maintenance activities on December 1, 2004, resulting in a low suction pressure to the main feedwater pumps. The primary cause of this finding was related to the cross-cutting area of human performance because licensee personnel failed to follow appropriate administrative procedure requirements when completing minor maintenance activities.

This finding was more than minor because it was related to the human performance attribute of the Initiating Events cornerstone and adversely impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The finding was of very low safety significance because all mitigating systems were available during the transient. No violation of NRC requirements occurred. Corrective actions included evaluating all open work requests designated as minor maintenance to ensure that plant operations would not be impacted.

Inspection Report# : [2004012\(pdf\)](#)

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inadvertent Opening of Pressurizer Power Operated Relief Valve 1042B

A finding of very low safety significance was self-revealed when testing of the reactor protection system by maintenance personnel caused pressurizer power operated relief valve (PORV) 1042B to open while the plant was in a water solid condition. The primary cause of this finding was related to the cross-cutting area of human performance. The finding was more than minor because it was related to the human performance and procedure quality attributes of the Initiating Events cornerstone. Also, the finding affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations since plant stability was upset while shutdown during solid plant operations with shutdown cooling in service.

A Phase 2 Significance Determination Process analysis was performed by the regional Senior Reactor Analyst which evaluated the key safety functions including core heat removal capability, power availability, containment control, reactivity controls, and inventory control. The Phase 2 analysis determined that all standby injection sources were available to preclude a loss of inventory and there was no possibility that residual heat removal would have been lost. Consequently, the finding screened as Green and therefore was of very low safety significance.

One Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified. Corrective actions included revising the work order to properly complete the testing activities and completion of an engineering evaluation to verify that no adverse impact on plant equipment resulted from the inadvertent opening of the PORV.

Inspection Report# : [2004010\(pdf\)](#)

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Significance: Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inadvertent Lift of Main Steam Safety Valve RV-0709

A finding of very low safety significance was self-revealed when main steam safety valve RV-0709 inadvertently lifted on September 14, 2004. Main steam safety valve setpoint testing on RV-0709 was conducted with the plant at power using hydraulic test equipment attached to the valve spindle. The test equipment required an adjustment for final verification testing but was unable to be moved due to residual hydraulic pressure from previous test steps. However, test personnel failed to turn off the hydraulic pump prior to attempting to bleed off the residual pressure. Consequently, hydraulic pressure continued to increase and RV-0709 inadvertently lifted. The primary cause of this finding was related to the cross-cutting area of human performance.

The finding was determined to be more than minor because it was related to the procedure quality and human performance attributes of the Initiating Events cornerstone. Also, the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations was affected since actions taken during testing activities increased the likelihood of opening a main steam safety valve and upsetting plant stability due to an increased steam demand while at power. However, the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available and therefore screened out as Green.

One Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified. Corrective actions included a revision to licensee procedures to include steps from the vendor test equipment instructions on securing the hydraulic pump.

Inspection Report# : [2004010\(pdf\)](#)

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Significance: Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Evaluate Operating Experience Information Precluded Implementation of Effective Corrective Actions For Frazil Ice at the Intake Crib

The inspectors identified a finding of very low safety significance when licensee personnel failed to adequately review operating experience information. As a result, frazil ice formed on the intake crib in February 2003 which partially blocked flow from the ultimate heat sink to the intake structure. The finding was more than minor because the finding was associated with the Protection Against External Factors attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective of limiting events that upset plant stability and challenge critical safety functions during power operations. The finding was of very low safety significance because the risk significance of the sequences evaluated using the Significance Determination Process Worksheet for the Palisades Nuclear Plant were less than the 1E-6 Green-to-White threshold.

Corrective actions to address this issue included the removal of bar racks from the intake crib to create a large enough gap to minimize the potential for frazil ice to form; revising plant procedures to add alternate methods of supplying water to the intake structure; and implementing the Nuclear Management Company operating experience program fleet procedure at Palisades. One Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified.

Inspection Report# : [2004007\(pdf\)](#)

Mitigating Systems

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Significance: Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure of Auxiliary Packing on High Pressure Safety Injection Pump P-66B

A finding of very low safety significance was self-revealed when the auxiliary packing on high pressure safety injection pump P-66B failed on June 3, 2004, immediately after the pump was started for surveillance testing. During a maintenance activity in March 2004 to replace the auxiliary packing, the procedure that was utilized did not contain adequate guidance. Consequently, the packing was excessively compressed and failed during the inservice surveillance test.

The finding was determined to be more than minor because it was related to the procedure quality attribute of the Mitigating Systems cornerstone. Also, the finding affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences since high pressure safety injection pump P-66A had to be removed from service to replace the auxiliary packing only 3 months after it had been replaced previously. However, because the finding was (1) not a design or qualification deficiency that had been confirmed to result in a loss of function per Generic Letter 91-18; (2) did not represent an actual loss of a safety function; and (3) did not screen as potentially risk significant due to a seismic, flooding, or severe weather event, the finding screened

out as Green.

One Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified. Corrective actions included a revision to the maintenance procedure to provide additional guidance on the installation of the auxiliary packing to preclude excessive compression.

Inspection Report# : [2004010\(pdf\)](#)

Significance:  May 20, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Licensed Operators Were Not Completing the Requirements of 10 CFR 55.53(f) to Reactivate Their licenses Prior to Resuming Watchstation Activities

The inspectors identified that the licensee was not completing the requirements of 10 CFR 55.53(f) prior to allowing inactive licensed operators to resume control room watchstanding duties. Because the Shift Engineer position did not meet the definition of "actively performing the functions of an operator or senior operator" per 10 CFR 55.4, "Definitions," operators inappropriately received credit for license proficiency when standing this watch station. For licensees that stood this watch station exclusively, their licenses became inactive at the end of the next calendar quarter. When these licensees subsequently stood Shift Manager or Control Room Supervisor watches prior to completing the requirements of 10 CFR 55.53(f), a violation of 10 CFR 55.53(e) requirements occurred.

The finding was more than minor because the failure to satisfy license proficiency requirement increased the likelihood of an operator error involving systems used to mitigate an event. The Significance Determination Process (SDP) Appendix I flowchart focused on general record deficiencies exceeding a specified threshold of 20 percent of the records reviewed. The sample review of 27 operators revealed that 7 operators had inactive senior operator licenses (26 percent). The inspectors determined from the SDP that this finding was of very low safety significance.

Inspection Report# : [2004008\(pdf\)](#)

Significance:  Apr 09, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain AFW Design Basis Physical Separation

A finding of very low safety significance was identified for the failure to maintain the design basis configuration (i.e., physical separation) between Auxilliary Feedwater (AFW) system trains. Specifically, the licensee's facility change that converted the spare high pressure safety injection pump into the independent AFW train C was to be physically separated from the AFW trains A and B. However, the AFW trains' A and B common pump discharge header piping was routed through the west safeguards (WESG) room, where the AFW train C pump was located. The primary cause of this finding was that the licensee's facility change provided no engineering evaluation that demonstrated the as-built configuration was acceptable.

This issue was more than minor because the lack of physical separation between the AFW trains' A and B common pump discharge header piping and the AFW train C pump affected the mitigating systems cornerstone objective. Specifically, a common pump discharge header piping break in the WESG room could potentially cause a failure of the AFW train C pump. As a result, the cornerstone objective of ensuring the availability, reliability, and capability of the AFW system to respond to initiating events was affected. The issue was of very low safety significance because it did not represent an actual loss of a safety function as determined by the licensee's subsequently documented engineering analysis. The issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to maintain the design basis configuration (i.e., physical separation) between AFW system trains.

Inspection Report# : [2004003\(pdf\)](#)

Barrier Integrity

Significance:  Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Heavy Load Lift of Primary Coolant Pump Outside of Required Path

The inspectors identified a finding of very low safety significance when the defined heavy load path inside containment was not followed on September 28, 2004, when a primary coolant pump motor was lifted and moved using the polar crane. Consequently, a portion of the motor passed over the refueling cavity during the move.

This finding was more than minor because a portion of the heavy load traveled over the open reactor vessel that contained irradiated fuel and therefore could be reasonably viewed as a precursor to a significant event. Because this finding was not suitable for a significance determination process evaluation, in accordance with Inspection Manual Chapter 0612, Section 05.04.c, the finding was submitted for review

by NRC management. This finding was of very low safety significance because: (1) the estimated likelihood of dropping the load was only about 1E-5 per crane operation based on a study in NUREG CR-4982 performed for spent fuel pool accidents; (2) the polar crane was in good working condition and had no known deficiencies that would have adversely impacted the crane's ability to lift the load; (3) the duration of the heavy load lift over the reactor cavity was short; and, (4) only a portion of the heavy load passed over the reactor cavity. One Non-Cited Violation of Technical Specification 5.4, "Procedures," was identified. Corrective actions included planned changes to the heavy load procedure and training of personnel involved with heavy load lifts to clearly define that the entire load, regardless of orientation, must be maintained within the heavy load path.

Inspection Report# : [2004012\(pdf\)](#)

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Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of Code UT Calibration Requirements in Procedure of Examination of Nozzle Repair Welds

The inspectors identified a finding of very low safety significance when American Society of Mechanical Engineers Code requirements were not met for an ultrasonic examination procedure associated with the non-destructive examinations of the weld repairs to reactor vessel head penetration nozzles No. 29 and No. 30. Specifically, the licensee failed to incorporate the Code requirements related to the timing, acceptance criteria, and corrective actions for unsatisfactory calibration checks into the ultrasonic examination procedure used for examination of these repair welds. The cause of this finding was related to the cross-cutting area of human performance because the cause of this error was due to a lack of rigor in the review of procedures.

This finding was more than minor because if left uncorrected, unacceptable weld flaws could be allowed to remain in service. Because this finding was not suitable for a significance determination process evaluation, in accordance with Inspection Manual Chapter 0612, Section 05.04.c, the finding was submitted for review by NRC management. The finding was of very low safety significance because these errors did not affect the quality of the ultrasonic examination data recorded. A Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified. As part of their immediate corrective actions, licensee personnel verified that the inadequate procedure had no actual impact on the quality of the weld examination.

Inspection Report# : [2004012\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Mar 05, 2004

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution

The inspectors concluded that the licensee's corrective action program attributes enabled timely problem identification commensurate with the significance level and that the threshold for problem identification was sufficiently low. Nuclear Oversight assessment reports appropriately identified problems, including issues associated with corrective action implementation. The majority of issues reviewed during the inspection were properly categorized and evaluated, although some evaluations were narrowly focused and of limited effectiveness.

Overall, the corrective actions reviewed during the inspection were appropriately implemented; however, some examples were identified where

corrective actions were not fully implemented or fully effective in correcting the identified problems. During this inspection, the inspectors found similar examples of corrective action program implementation weaknesses to those identified during the previous Problem Identification and Resolution Inspection. However, the examples were limited in number and significance relative to this previous inspection. The inspectors noted that improvements have been demonstrated in the licensee's corrective action program over the past year. It was also apparent during the review of internal assessments that the licensee was properly focused on improving the corrective action program.

Inspection Report# : [2004004\(pdf\)](#)

Last modified : March 09, 2005