

Kewaunee 4Q/2004 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Have Procedures Appropriate to the Circumstances for Preventive Maintenance of the TDAFW Pump Turbine

A finding of very low safety significance was self-revealed during the licensee's review of high oil particulate in the Turbine Driven Auxiliary Feedwater Pump Turbine, which resulted in a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." The licensee determined that high oil particulate in the Turbine Driven Auxiliary Feedwater Pump Turbine was caused by damage to the journal bearing. Maintenance procedures did not specify appropriate acceptance criteria for oil sampling, did not specify an appropriate inspection frequency and criteria for the turbine bearings and bearing cavities, and allowed the reuse of bearings in different locations during maintenance of the Turbine, which were not acceptable maintenance practices. The reuse of the upper inboard bearing in a different location contributed to the journal bearing damage. The licensee took immediate remedial corrective actions to replace the bearings, clean the housing and return the pump to service. In addition, the licensee revised its maintenance procedures to include appropriate instructions for turbine and pump maintenance activities.

This self-revealed finding was more than minor because, if left uncorrected, the issue would have become a more significant safety concern. In addition, it affected the Mitigating Systems attributes of equipment performance reliability and the Mitigating Systems cornerstone objective of ensuring the reliability of systems. The finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, And Drawings."

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

Significance: G Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." Failure to Promptly Correct Conditions Adverse to Quality, Specifically Associated with Degraded and Nonconforming Conditions

A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions." During a review of the licensee's list of safety-related equipment designated as degraded or nonconforming, the inspectors identified that the licensee failed to promptly correct three conditions adverse to quality. These conditions adverse to quality included noncompliance of both Residual Heat Removal pump seal coolers with system design requirements, which was previously identified by NRC inspectors in November 2002, but not promptly corrected by the licensee; and two sections of safety-related piping, one associated with the "B" Emergency Diesel Generator fuel oil supply and the other associated with the Component Cooling Water piping from the "B" Residual Heat Removal pump seal cooler and stuffing box, that were identified by the licensee in September and April 2003, respectively, as exceeding Updated Safety Analysis Report stress criteria but not promptly corrected by the licensee. The primary cause of this finding was related to the cross-cutting area of problem identification and resolution. The licensee failed to prioritize and promptly correct these conditions adverse to quality in accordance with the guidelines in the corrective action program. Once these conditions were identified, the licensee restored the following conditions to operable: the 'A' RHR Pump Seal Cooler; the CCW piping expansion loop from the 'B' RHR pump seal cooler; and the fuel oil supply piping to the 'B' EDG. The licensee planned to restore the 'B' RHR Pump Seal Cooler during the upcoming Fall 2004 Refueling Outage.

This issue was more than minor because it affected the Mitigating System cornerstone attribute of design control for initial design and plant modifications and affected the associated cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions."

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

G**Significance:** Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Have Acceptance Criteria for Flushing of the 1ARHR Fan Coil Unit

A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, And Drawings." This finding was associated with the licensee's failure to implement an appropriate inspection and cleaning procedure containing quantitative or qualitative acceptance criteria for the 1A RHR pump pit Fan Coil Unit to ensure that cleaning was satisfactorily accomplished. Following discovery, the licensee entered the issue into its corrective action program and conducted an immediate operability assessment that determined the involved fan coil units were operable.

This issue was more than minor because it involved the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, And Drawings."

Inspection Report# : [2004007\(pdf\)](#)**G****Significance:** Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50, Appendix B, Criterion III, "Design Control." Failure to Verify the Acceptability of a Single Failure Vulnerability Introduced During a System Modification

A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This finding was associated with the licensee's failure to perform a design verification to demonstrate that the diesel generator lube oil cooler service water outlet valve actuators, installed under Design Change 3357, would not result in a failure of the valve stems under conditions in which the valve ball froze nor had the licensee provided sufficient justification to show that valve ball freezing was not credible. Following discovery, the licensee entered the issue into its corrective action program and performed an operability assessment which provided additional justification to demonstrate that the stem failure was considered not credible.

This issue was more than minor because it involved the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control."

Inspection Report# : [2004007\(pdf\)](#)**G****Significance:** Jul 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Repair the Deluge System Heat Detectors in a Timely Manner

The team identified a Non-Cited Violation of a license condition for fire protection. The licensee failed to take timely corrective actions to repair several maintenance storage area deluge system rate-of-rise heat detectors which were inoperable for an extended period of time. At the time of this inspection, the detectors had been repaired and returned to operability.

The finding was greater than minor because it affected the mitigating systems cornerstone attribute of protection against external factors (fire). Specially, a partially inoperable deluge system can increase the likelihood of a fire which could challenge safe shutdown. The finding was of very low safety significance because this fire area has Pyr-A-Larm ionization detectors located at the ceiling level. These detectors would alarm in the control room and the fire brigade would respond to a fire in this area. In addition, other defense-in-depth fire protection elements remained unaffected and fire in this area would not result in a loss of dedicated safe shutdown systems.

Inspection Report# : [2004005\(pdf\)](#)**G****Significance:** Jul 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Acceptable (Quality Related) Pre-Fire Strategies

A finding of very low safety significance was identified by the team for a violation of a license condition for fire protection. The licensee failed to include pertinent information in their fire strategies. Specifically, the licensee failed to include information about the potential unavailability of certain fire hose stations and identify hydrogen and propane piping hazards in a fire zone. Once the issues were identified, the licensee entered the issue into their corrective action program and planned to revise their fire strategies to include the pertinent information.

The issue was greater than minor because the failure to include pertinent information relating to the water supply used for manual fire fighting and hazards associated with hydrogen and propane piping in fire strategies could adversely impact fire fighting strategies used by the fire brigade in fighting a fire. The issue was of very low safety significance because of the extensive training provided to fire brigade members to deal with unexpected contingencies. The issue was a Non-Cited Violation of License Condition 2.C(3) which required, in part, that fire area strategies provide the fire brigade pertinent information on a given plan area to help the brigade to be better prepared for fire fighting within that area.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Jul 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Meet the Fire Protection Program Requirements for Hose Lengths to Maintain an Acceptable Water Pressure and Flow at Hose Stations

The team identified a Non-Cited Violation of License Condition 2.C(3), which requires the licensee to implement all provisions of their NRC approved fire protection program. The licensee failed to meet the fire protection program requirements for hose lengths to maintain an acceptable water pressure and flow to hose stations. The licensee's corrective actions included replacing hoses to increase water flow at hose stations

The finding was greater than minor because it affected the mitigating systems cornerstone attribute of protection against external factors (fire). Specifically, the failure to maintain acceptable water pressure and water flow to hose stations can hamper the brigade's ability to fight a fire, thereby, potentially endangering mitigating systems. The finding was of very low safety significance because the problem only impacts the effectiveness of the fire brigade while other fire protection features, such as fire barriers and physical separation remain available.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Jul 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Meet the NFPA Code Requirements for Extinguisher Placement

The team identified a Non-Cited Violation of License Condition 2.C.(3), which requires the licensee to implement all provisions of their approved fire protection program. Amendment No. 23 to Facility Operating License Safety Evaluation Report dated December 12, 1978, required fire extinguishers in accordance with the National Fire Protection Association Code. The licensee failed to meet the Code requirements for extinguisher placement in Fire Area AX-32. Once identified, the licensee initiated corrective actions to meet the Code requirements.

The finding was greater than minor because it affected the mitigating systems cornerstone attribute of protection against external factors (fire). Specially, not having an extinguisher to put out a small fire can increase the likelihood of a fire which could challenge safe shutdown. The finding was of very low safety significance because this fire area has fire detectors that would alarm in the control room and the fire brigade would respond to a fire in this area. In addition, other defense-in-depth fire protection elements remained unaffected and fire in this area would not result in a loss of dedicated safe shutdown systems.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Jul 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Transient Combustibles Not Adequately Controlled Within Fire Area AX-32

The team identified a Non-Cited Violation of License Condition 2.C(3) for failure to adequately control transient combustibles in fire area AX-32. Specifically, authorization for the storage and use of combustibles in safety-related areas was not obtained. Once uncontrolled transient combustibles were identified, the materials were either included in the transient combustible permit system or removed from the area.

The issue was greater than minor because the failure to adequately control combustible materials could result in a more significant safety issue. Uncontrolled combustibles could result in the greater likelihood or severity of a fire which affects equipment important to safety. The finding was of very low safety significance because of mitigation capability available in the event of a fire in fire area AX-32.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Jul 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Transient Combustibles Not Adequately Controlled Within Fire Area AX-24

The team identified a Non-Cited Violation of License Condition 2.C(3), in that a hazardous quantity of transient combustibles was present in fire area AX-24. The hazardous quantity of transient combustibles present exceeded the quantity of combustibles allowed with no fire detection systems in this fire area.

The finding was greater than minor because it affected the mitigating systems cornerstone attribute of protection against external factors (fire). Specifically, the presence of transient combustibles beyond what was approved by the NRC could result in the increased likelihood of a fire which could challenge safe shutdown. The finding was of very low safety significance because a fire from the observed transient combustibles would not result in a loss of the alternate shutdown systems.

Inspection Report# : [2004005\(pdf\)](#)

Significance:  Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct Issues Associated with Historical Safety Injection Lube Oil Cooler Fouling; 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action"

A finding of very low safety significance associated with a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was self-revealed on January 15, 2004, when licensee inspection of the 'A' and 'B' safety injection pump lube oil coolers identified silt and lake grass accumulation at the tube pass inlets. Significant fouling of the safety injection pump lube oil coolers with lake grass had been identified by the licensee as early as 1992 when the coolers were first opened and inspected. The licensee failed to enter the results of those inspections in the corrective action program when fouling was identified, until 2001. When the issue was entered into the corrective action program in 2001, following an inspection by plant personnel, the associated evaluation did not adequately address the issue and corrective actions were not taken in a timely manner to address the issue.

The licensee initiated numerous corrective actions to address the root and contributing causes identified during the root cause evaluation of this event. Some of those actions included: replacing the old safety injection pump lube oil coolers with coolers of a new design; performing an extent of condition review of other service water systems prior to plant restart in January 2004 to ensure no similar immediate issues existed; sharing lessons learned from this event with all plant staff; and performing a prioritization review of all outstanding plant design modifications.

The inspectors verified the licensee's past operability analysis for the safety injection pumps. The inspectors evaluated the finding using the results of that analysis and Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening, and determined that the finding was of very low safety significance.

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

Significance:  Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to have Procedures Appropriate to the Circumstances, Including Appropriate Acceptance Criteria for Implementation of the Generic Letter 89-13 Program with Respect to the Safety Injection Lube

A finding of very low safety significance associated with a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed when the licensee discovered fouling of the safety injection pump lube oil coolers in January 2004. The licensee determined that evidence of the fouling had been present since the first inspection of the coolers in 1992. The licensee performed that first inspection as part of its actions to comply with Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." However, no acceptance criteria were included in the licensee's procedures developed to implement the commitments of Generic Letter 89-13 for these coolers to ensure that this activity had been satisfactorily accomplished.

The licensee initiated several corrective actions to address this issue, some of which included: establishing appropriate acceptance criteria for the safety injection lube oil coolers; developing a recovery plan for the licensee's Generic Letter 89-13 program and categorizing the program health in a red status; designating a single program owner to the Generic Letter 89-13 program; and reviewing other procedures utilized to implement the licensee's Generic Letter 89-13 program to verify specific acceptance criteria are contained in the procedures.

The inspectors verified the licensee's past operability analysis for the safety injection pumps. The inspectors evaluated the finding using the results of that analysis and Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening, and determined that the finding was of very low safety significance.

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

Significance:  Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO NOTIFY THE NRC OF A CHANGE IN OPERATOR STATUS IN ACCORDANCE WITH 10 CFR 50.74(c)

The inspector identified a violation of 10 CFR 50.74(c), "Notification of Change in Operator or Senior Operator Status." The inspector identified that the facility licensee failed to notify the NRC within 30 days after receiving a change in medical status of a licensed operator from the station's medical examiner. The change in medical status required conditioning of the operator's license by the NRC.

Inspection Report# : [2004002\(pdf\)](#)

G**Significance:** Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to have procedures appropriate to the circumstances, including appropriate acceptance criteria for determining important activities have been satisfactorily accomplished for inservice inspect

A finding of very low safety significance associated with a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed when, on December 10, 2003, licensee personnel discovered evidence of component cooling water (CCW) system leakage from a radiation detector housing integral to the CCW piping. The leakage was determined to be evidence of a through wall leak of an American Society of Mechanical Engineers (ASME) Section XI Class 3 pipe which rendered both trains of CCW inoperable. Therefore, on December 12, 2003, operators declared both trains of the CCW system inoperable, due to the small CCW leak on the CCW radiation detector housing. The licensee subsequently determined that evidence of the leakage had been present for the past 13 years. However, less than adequate procedure acceptance criteria resulted in licensee personnel classifying the leakage during inservice inspections as a 'non-recordable' indication instead of the required 'recordable' indication for this type leakage.

The licensee took immediate corrective actions to move the ASME Section XI Class 3 piping boundary to the radiation detector housing. In addition, the licensee implemented corrective actions to prevent recurrence which included: revision of 19 inservice inspection surveillance procedures to incorporate appropriate acceptance criteria; and discussions of the root cause with licensee inservice inspection personnel as a lessons-learned.

This self-revealed finding was greater than minor because, if left uncorrected, the finding would become a more significant safety concern. The inspectors evaluated the finding using the Significance Determination Process, Appendix A, Phase 1 Screening, and determined that the finding was of very low safety significance.

Inspection Report# : [2004002\(pdf\)](#)**G****Significance:** Jan 28, 2004

Identified By: NRC

Item Type: FIN Finding

Failure to appropriately evaluate for potential bypass flow on service water strainers

The inspectors identified a finding of very low safety significance associated with the licensee's failure to appropriately evaluate for potential bypass flow on the service water pump discharge strainers by measuring a critical gap dimension at the bottom of the basket-to-housing interface. This finding did not constitute a violation of NRC requirements because the strainers (aside from the pressure boundary) did not fulfill a safety-related function.

The inspectors determined that the finding was of more than minor significance because it would become a more significant safety concern if left uncorrected. Specifically, the failure to appropriately evaluate for potential bypass flow on the service water pump discharge strainers could reasonably result in debris fouling of service water cooled components and degraded or inoperable safety-related equipment. The inspectors concluded that this finding was a licensee performance deficiency of very low safety significance because it did not result in loss of safety function for a service water system train for greater than its Technical Specification allowed outage time. To address this issue, the licensee opened each strainer and measured the gap at the bottom of the basket-to-housing interface.

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

Barrier Integrity

G**Significance:** Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Implement Procedures for Work on Safety-Related Equipment

A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, And Drawings." The licensee conducted corrective maintenance to fix a deficient condition on the containment personnel hatch seal, a safety-related component, under the 'toolpouch maintenance' process rather than with the use of a work request or a work order, contrary to procedural requirements. The primary cause of this finding was related to the cross-cutting area of human performance. Licensee personnel failed to appropriately implement licensee procedures for conducting work on safety-related components. Once this was identified, the licensee performed an extent of condition evaluation on the work control process and identified that, since July 2002, approximately 14 percent of the work performed under 'toolpouch maintenance' had been performed on safety-related components without a work order. The licensee also implemented a number of corrective actions to ensure work on safety-related equipment is conducted according to procedural requirements.

This issue was more than minor because it affected the Barrier Integrity Cornerstone attribute of reactor containment integrity, and, if left uncorrected, the finding could become a more significant safety concern. The finding was of very low safety significance because it did not

represent an actual open pathway in the physical integrity of the reactor containment and none of the work conducted on safety-related equipment without a work order resulted in an operability concern. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, And Drawings."

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

G

Significance: Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to correct historical residual heat removal pump mechanical seal leakage; 10CFR Part 50, Appendix B, Criterion XVI, "Corrective Action"

A finding of very low safety significance associated with a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions", was self-revealed on June 16, 2004, when licensee personnel discovered leakage from the 'B' residual heat removal (RHR) pump seal when the pump was stopped following the performance of a surveillance procedure on the 'B' RHR train. Plant personnel determined the leakage to be in excess of that specified in the plant's System Integrity Program for leakage from emergency core cooling systems outside containment. The leakage was also in excess of the amount of leakage assumed in the Updated Safety Analysis Report, Chapter 14, for calculation of control room habitability doses and offsite exposures. The inspectors subsequently determined, from interviews with licensee personnel and a review of the licensee's corrective action program and work order history, that excessive RHR seal leakage has occurred since the late 1980s. However, past corrective actions have not been effective to correct this condition adverse to quality.

The licensee performed a prompt engineering review to ensure that no immediate catastrophic failure mechanism for the RHR seal existed. The licensee also performed a prompt engineering review of the impact of the estimated leakage on the control room habitability doses, as well as the offsite doses, and determined no exposure limits would be exceeded. The licensee took actions to immediately stop the leakage and plans to replace the RHR pump seal during the next refueling outage.

This self-revealed finding was more than minor because the finding affected the cornerstone objective of Reactor Safety/Barrier Integrity. The inspectors evaluated the finding using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening, and determined that the finding was of very low safety significance.

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

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : March 09, 2005