

Cooper

4Q/2006 Plant Inspection Findings

Initiating Events

Significance:  Sep 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Risk Assessment for Safety-Related Undervoltage Relay Testing

The NRC identified a noncited violation of 10 CFR 50.65(a)(4) regarding the online risk evaluation for a surveillance test on safety-related undervoltage relays. On August 21, 2006, the licensee performed routine testing of the under-voltage relays for safety-related Bus 1G. The online risk assessment for August 21 reflected this testing but did not consider an increase in the likelihood of a loss of offsite power due to a modification of transmission towers inside the owner controlled area that was occurring at the same time. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-06099.

The finding affected the Initiating Events Cornerstone and is more than minor because the licensee's risk assessment failed to consider unusual external conditions that were present during the surveillance test. The finding is not suitable for significance determination process evaluation; however, it has been reviewed by NRC management and was determined to be a finding of very low safety significance. This determination took into consideration the short duration of the work activity and the fact that the relay testing and the transmission modifications were both completed without any adverse consequences. The cause of the finding is related to the crosscutting element of human performance in that the licensee's work control process did not appropriately incorporate risk insights regarding the transmission system work while planning Bus 1G undervoltage testing.

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

Significance:  Jun 24, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failures to Properly Control Combustibles in the Plant

The NRC identified a noncited violation of Technical Specification 5.4.1.d regarding the licensee's failure to implement fire protection program procedures. On April 11 and June 8, 2006, the inspectors identified a total of four examples of transient combustible material in reactor building fire zones which did not meet the requirements of plant fire protection procedures. This issue was entered into the licensee's corrective action program as CR-CNS-2006-04622.

The finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of protection against external factors such as fire. Using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the finding is determined to have very low safety significance because the reliability and effectiveness of the plant combustible materials program is only minimally affected by the finding. The causes of this finding are related to the crosscutting element of human performance. In the case of the scaffolding planks, a human error resulted in the inadvertent deletion of the material from the transient combustible data base without its removal from the reactor building. In the other examples, personnel failed to properly control combustibles in accordance with procedures and failed to adhere to postings regarding the placement of combustibles in the plant.

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

Mitigating Systems

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants

The inspector identified a non-cited violation of 10 CFR 55.21, "Medical Examination," and 10 CFR 55.23, "Certification." The inspector identified that the licensee failed to conduct all the medical testing required by American Nuclear Standards Institute/American Nuclear Society 3.4 -1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," as committed to by the facility licensee. Specifically, the facility licensee was not testing its operators for nose sensitivity (i.e., ability to detect odor of products of combustion and of tracer or market gases) Section 5.4.2, "Nose." Once identified, the licensee implemented immediate corrective actions to medically test all operators prior to returning to on-shift duties.

This finding was more than minor because the inadequate medical examinations could result in potential consequences due to licensed operators who may not be medically qualified to perform licensed duties and could, therefore, potentially affect the health and safety of the public. The finding was also of very low safety significance because no actual consequences were noted due to adverse medical conditions. In addition, no adverse operational events were observed to have occurred due to inadequate medical conditions or missed medical tests. This finding has a cross-cutting aspect in the area of human performance associated with work practices because the licensee did not effectively supervise the work performed by the doctor, a contract worker, to ensure the requirements in the applicable procedures, American National Standards Institute 3.4-1983, were met.

Inspection Report# : [2006005 \(pdf\)](#)

Significance:  Dec 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Work Instructions

A self-revealing non-cited violation of Technical Specification 5.4.1.a was identified regarding the licensee's failure to follow procedures for maintenance affecting the performance of safety-related equipment. Work Order 4514076 provided instructions to instrumentation and control technicians to connect a digital recorder to the Emergency Diesel Generator 2 voltage regulator. Contrary to the instructions in the Work Order, the technicians connected additional test equipment resulting in damage to Emergency Diesel Generator 2. The licensee entered this into their corrective action program as Condition Report CR-CNS-2006-08999.

The finding is more than minor because it is associated with the human performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the NRC Manual Chapter 0609 Appendix G, "Shutdown Operations Significance Determination Process," Phase 1 Checklist, the finding is determined to have very low safety significance because one operable diesel generator was still capable of supplying power to the Class 1E electrical power distribution subsystems. This finding has a crosscutting aspect in the area of human performance given that the licensee's work practices did not ensure that personnel do not proceed in the face of uncertainty or unexpected circumstances.

Inspection Report# : [2006005 \(pdf\)](#)

Significance:  Dec 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Identify and Correct Nonconforming Conditions in Safety-Related Motor-Operated Valves

A self-revealing, noncited violation of 10 CFR, Part 50, Appendix B, Criterion XVI, was identified regarding the licensee's failure to correct a nonconforming condition in safety-related, motor-operated valves. In 1994, Limitorque and the NRC notified the industry that the torque switch roll pin in certain Limitorque valve actuators was susceptible to failure. The licensee took no corrective actions based on this notification. On November 8, 2006, the acceptable torque range was exceeded during stroking of the high pressure coolant injection inboard steam isolation valve due to the failure of the torque switch roll pin. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-08821.

The finding affected the Mitigating Systems cornerstone and is more than minor because, if left uncorrected, it would

become a more safety significant concern. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because there was no loss of safety function for the high pressure coolant injection system.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Identify and Correct Degraded Condition on Service Water Strainer

A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion XVI was identified regarding the licensee's failure to identify and correct age-related degradation in the motor coupling for Service Water Discharge Strainer A. Corrective maintenance designed to identify and replace degraded components was performed in February, 2006; however, the licensee failed to identify and replace a degraded rubber sleeve in the coupling which subsequently failed on October 29, 2006. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-08226.

The finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of equipment performance and affects the associated cornerstone objective to ensure the availability and reliability of systems that respond to initiating events. The Phase 1 worksheet in Manual Chapter 0609, "Significance Determination Process," were used to conclude that a Phase 2 analysis was required because the finding also increased the likelihood of a loss of service water initiating event. Based on the results of a Phase 3 analysis, the finding is determined to have very low safety significance. The cause of the finding is related to the corrective action component of the crosscutting area of problem identification and resolution in that the licensee failed to identify this issue in a timely manner.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Implement Vendor Recommendations Results in a Fire

A self-revealing finding was identified regarding the failure to install heat trace on the standby liquid control system in accordance with the vendor manual. The heat trace was installed in 1994 without the required ground-fault circuit protection. This resulted in a small fire in the heat trace on November 11, 2006. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-09006.

The finding is more than minor because it is associated with the Mitigating Systems Cornerstone attribute of design control and affects the associated cornerstone objective to ensure the availability, reliability, and capability of the standby liquid control system that is required to respond to initiating events, such as anticipated transients without scrams. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because there it did not result in a loss of safety function.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure Results in Safety-Related Valve Failure

A self-revealing non-cited violation of Technical Specification 5.4.1a was identified for licensee's failure to establish adequate maintenance procedures for safety-related, motor-operated valves. Between 1993 and 2006, maintenance procedures for Limatorque motor actuators did not contain sufficient detail to ensure that actuator motor pinion gears were installed correctly. This deficiency resulted in the failure of a low pressure safety injection valve on October 17, 2006 due to its pinion gear migrating off the motor shaft. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-07490.

The finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of equipment performance and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. The Phase 1 worksheets in NRC Manual Chapter 0609, "Significance Determination

Process," were used to conclude that a Phase 2 analysis was required because it resulted in the loss of a train of low pressure coolant injection for greater than the Technical Specification allowed outage time. The inspectors performed a Phase 2 analysis using Appendix A, "Technical Basis For At Power Significance Determination Process," of Manual Chapter 0609, "Significance Determination Process," and the Phase 2 worksheet for Cooper Nuclear Station. Based on the results of the Phase 2 analysis, the finding is determined to have very low safety significance.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Sep 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Requirements for Scaffolding Construction

The NRC identified a noncited violation of Technical Specification 5.4.1.a regarding the licensee's failure to follow procedures for maintenance affecting the performance of safety-related equipment. Specifically, the inspectors discovered three examples of scaffolding constructed within the minimum separation distance to operable safety-related equipment as defined in Maintenance Procedure 7.0.7, "Scaffolding Construction and Control." The licensee documented the procedural violations in CR-CNS-2006-06763.

The finding affected the Mitigating Systems Cornerstone and is more than minor because, if left uncorrected, the failure to maintain the standards of Procedure 7.0.7 could become a more significant safety concern. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because it did not represent the loss of a safety function of a single train for greater than its Technical Specification allowed outage time. This finding has a crosscutting aspect in the area of human performance in that the licensee did not effectively communicate expectations regarding work practices to workers constructing scaffolding or to supervisors who routinely monitor these activities.

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

Significance:  Sep 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure for Tracking Failed Control Room Annunciators

The NRC identified a noncited violation of Technical Specification 5.4.1.a regarding the licensee's inadequate procedure for tracking abnormal, off-normal or alarm conditions. On August 11, 2006, during a review of operator work arounds, the inspectors identified that a failed control room annunciator was not being controlled as required by Alarm Procedure 2.3.1, "General Alarm Procedure," Revision 51. The annunciator had been marked with a green flag since June 11, 2006, to indicate that it had failed even though it was still performing its function. The licensee documented the procedural violation in Condition Report CR-CNS-2006-05852 on August 14, 2006.

The finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of equipment performance and affects the associated cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because it did not represent the loss of a safety function of a single train for greater than its Technical Specification allowed outage time. This finding has a crosscutting aspect in the area of human performance in that the licensee did not provide personnel with adequate resources for tracking abnormal, off-normal or alarm conditions. Specifically, Procedure 2.3.1 required daily checks of failed or continuously alarming annunciators but did not specify a method to perform these checks.

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

Significance:  Jun 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Appropriately Respond to Control Room Alarms in Accordance with Plant Procedures

The NRC identified two examples of a noncited violation of Technical Specification 5.4.1.a. In the first example, on June 20, 2006, operators failed to sound the fire alarm, announce the fire, and dispatch the fire brigade, as required by plant procedures, in response to a fire alarm in the reactor building. In the second example, personnel failed to take appropriate

actions for a degraded control room annunciator associated with a fire alarm, as required by plant procedures. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-04815.

The finding is more than minor because the failure to appropriately respond to alarm indications could be viewed as a precursor to a significant event. The failure to implement the plant fire procedure is not suitable for significance determination process evaluation but has been reviewed by NRC management and is determined to be a finding of very low safety significance since there were no actual consequences as a result of this event. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the failure to address a degraded fire alarm is determined to have very low safety significance because it did not involve the loss of a safety function and did not screen as potentially risk significant due to seismic, flooding, or a severe weather initiating event. The cause of the finding is related to the crosscutting element of human performance in that these procedure requirements were unambiguous and it was within the licensee's ability to have correctly implemented those requirements.

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

Significance:  May 17, 2006

Identified By: NRC

Item Type: FIN Finding

Failure to Implement Fire Fighting Standards

The NRC identified a finding regarding the failure to implement fire fighting standards when responding to a possible fire in the radwaste building. On May 17, 2006, operators entered their emergency procedure for fires and dispatched the fire brigade in response to a report of smoke in the radwaste building. Contrary to the plant's firefighting standards, the licensee declared the fire out prior to determining the source of the smoke and completing a thorough search of the area to determine the extent of the fire. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-03651.

The finding is more than minor because it could be viewed as a precursor to a significant event in that the failure to adequately inspect an area prior to declaring a fire out could allow a fire to continue to burn unnoticed, resulting in a much larger and more significant fire. Because the finding is not suitable for significance determination process evaluation, NRC management reviewed the finding and determined that it is of very low safety significance since the performance deficiency was not pervasive, based on previous observations of fire brigade performance, and there were no actual consequences as a result of this event. The cause of the finding is related to the crosscutting element of problem identification and resolution in that the corrective actions for previous fire brigade performance deficiencies were not fully effective in preventing this similar performance deficiency. In addition, the licensee did not identify or initiate any corrective actions in response to this performance deficiency.

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

Significance:  Mar 24, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Design Control of Service Water Discharge Strainers

The NRC identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," regarding the use of unqualified parts in the service water discharge strainers. Specifically, between 1994 and 2004, the mechanical components used in the strainers were classified as nonessential. This contributed to the failure of Service Water Discharge Strainer B on May 30, 2004. The licensee entered this issue into their corrective action program as Condition Report CR-CNS-2004-04050.

The finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of design control and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The Phase 1 worksheets in Manual Chapter 0609, "Significance Determination Process," were used to conclude that a Phase 2 analysis was required because the finding also increased the likelihood of a loss of service water which is an initiating event for Cooper Nuclear Station. The inspectors performed a Phase 2 analysis using Appendix A, "Technical Basis For At Power Significance Determination Process," of Manual Chapter 0609, "Significance Determination Process," and the Phase 2 worksheets for Cooper Nuclear Station. Based on the results of a Phase 3 analysis, the finding is determined to have very low safety significance. The cause of the finding is related to the crosscutting element of problem identification and resolution in that, following a

similar violation documented in NRC Inspection Report 05000298/2003002-05, the licensee had an opportunity to identify and correct this issue prior to the failure of the strainer.

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

Significance:  Mar 14, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Actions for Service Water Plugging Events

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for failure of the licensee to take adequate and timely corrective action to prevent recurrence of a significant condition adverse to quality. Specifically, the licensee's corrective actions taken since a service water strainer clogging event in November 2004 did not preclude the event from occurring in October 2005. The effect of these events was to cause a loss of both trains of service water for a short period of time and potentially challenge the cooling function to downstream components.

This finding affected the Initiating Events and Mitigating Systems Cornerstones since the loss of service water is an initiating event and the service water system is required to mitigate the consequences of an accident. The finding was more than minor since it could reasonably be viewed as a precursor to a significant event and it affected the cornerstone attribute of availability and reliability of mitigating equipment. Since two cornerstones were affected by the finding, a Significance Determination Process Phase 2 analysis was required. The finding was determined to be Green. Crosscutting aspects associated with problem identification and resolution were identified based on the fact that it was within the licensee's capability to have determined and corrected the problem prior to the failures in October 2005, yet they failed to do so.

Inspection Report# : [2005015](#) (*pdf*)

Significance:  Mar 14, 2006

Identified By: NRC

Item Type: FIN Finding

Failure to Implement Commitment in Response to Generic Letter 89-13

The inspectors identified a Green finding for failure of the licensee to implement a commitment made to the NRC. Specifically, the licensee did not carry out the programmatic service water intake bay inspections described in their response to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment."

The finding was more than minor since not performing the inspections could become a more significant safety concern if left uncorrected, as degraded conditions in the service water intake bay could affect the operability of the ultimate heat sink for the facility. This finding is not suitable for significance determination process evaluation, but was reviewed by NRC management and determined to be of very low safety significance due to the fact that it did not result in an increase in the likelihood of an initiating event and did not result in the actual degradation of a mitigating system. The inspectors identified crosscutting aspects in problem identification and resolution in that this disparity was identified by the NRC in 1994 and again by the licensee in 2003 without any corrective actions being taken.

Inspection Report# : [2005015](#) (*pdf*)

Significance:  Jan 23, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Procedure Renders Emergency Diesel Generator and One Offsite Power Source Inoperable

A self-revealing noncited violation of Technical Specification 5.4.1.a was identified regarding the failure of operations personnel to follow procedures for testing safety-related undervoltage relays. Specifically, on January 23, 2006, two licensed operators failed to install a jumper correctly while performing Surveillance Test 6.2EE302, "4160V Bus 1G Undervoltage Relay and Relay Timer Functional Test (Div 2)," Revision 13. This rendered Emergency Diesel Generator 2 and the emergency stations service transformer inoperable. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-00485.

The finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of human performance and affects the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Using the Manual Chapter 0609,

"Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because it did not represent the loss of a safety function of a single train for greater than its Technical Specification allowed outage time. The cause of the finding is related to the crosscutting element of human performance in that operations personnel failed to follow the surveillance procedure.

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

Barrier Integrity

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Identify and Correct an Unanalyzed Condition in the Torus

The NRC identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, involving the licensee's failure to promptly identify and correct a condition adverse to quality regarding an unanalyzed condition in the torus. Specifically, the inspectors identified a trolley/hoist and chain the torus that had been in the torus for the past five operating cycles without being evaluated for its potential impact on safety-related equipment. The licensee documented the condition in Condition report CR-CNS-2006-09338.

The finding is more than minor because it is associated with the Barrier Integrity cornerstone attribute of design control and it affects the associated cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding is determined to have very low safety significance because it did not represent an actual breach of containment. This finding has a crosscutting aspect in the area of problem identification and resolution in that the licensee did not implement a corrective action program with a low threshold for identifying issues. Specifically, the unanalyzed condition existed in a location frequently accessed during refueling outages but never questioned by the licensee.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Operation of Reactor Above Total Core Flow Limit

The NRC identified a non-cited violation of Technical Specification 5.4.1.a regarding the licensee's failure to follow procedures for power operation and process monitoring. Specifically, the licensee operated the reactor above the total core flow limit, contrary to requirements of General Operating Procedure 2.1.10, "Station Power Changes." The licensee documented this violation in Condition Report CR-CNS-2006-07255.

The finding is more than minor because it is associated with the Barrier Integrity cornerstone attribute of human performance (procedural adherence) and it affects the associated cornerstone objective to provide reasonable assurance that physical design barriers, such as fuel cladding, protect the public from radionuclide releases caused by accidents or events. Using the NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because it only had the potential to affect the fuel cladding barrier. This finding has a crosscutting aspect in the area of human performance in that the licensee did not effectively communicate expectations regarding work practices to operators for the control of key parameters such as total core flow.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Sep 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Identify Reactor Operation in Excess of Licensed Thermal Power Limits

The NRC identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, regarding the failure to promptly

identify a significant condition adverse to quality regarding operation of the reactor above the licensed thermal power limits for 3 days. On June 20, 2006, licensee personnel inadvertently introduced a nonconservative error into the core thermal power calculation which was not discovered until June 23. As a result, the reactor was operated above the licensed thermal power limit of 2381 MW for 3 days. Reactor power remained below 102 percent during the entire period; therefore, the reactor was not operated outside its design limits. This issue was entered into the licensee's corrective action program as Condition Report CR-CNS-2006-04573.

The finding is more than minor because it is associated with the Barrier Integrity cornerstone attribute of human performance (procedure adherence) and affects the associated cornerstone objective to provide a reasonable assurance that physical design barriers, such as fuel cladding, protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding is determined to have very low safety significance because it only involved the potential to affect the fuel barrier. The cause of the finding is related to the corrective action component of the crosscutting area of problem identification and resolution in that the licensee failed to identify this issue in a timely manner.

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

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Technical Specification 5.4.1.a Violation for Inadequate Procedure For Reactor Pressure Vessel Refueling Preparation

The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a involving the licensee's procedure for reactor pressure vessel refueling preparation was not adequate. The licensee's refueling procedure allowed the control room supervisor or shift manager to alter the sequence to suit existing plant conditions and time requirements. However, the procedure did not contain any precautions or limitations to consider the impact that altering the sequence would have on ancillary systems such as the high efficiency particulate air filter hose connection to the reactor pressure vessel vent. In addition, the change in sequence was not communicated or coordinated with radiation protection to evaluate potential radiological impacts. Consequently, when the licensee raised the reactor pressure vessel water level at an earlier stage in the reactor head disassembly process, the increased temperature and pressure applied to the high efficiency particulate air hose caused it to disconnect from the reactor pressure vessel vent. The loss of this connection released activation products onto the refuel floor and created an airborne radioactivity area, which alarmed the continuous air monitor and contaminated five workers. The licensee's immediate corrective actions were to evacuate personnel from the Refuel floor and begin decontamination of the workers and the areas involved.

The finding was greater than minor because it was associated with the occupational Radiation Safety Cornerstone attribute of Program and Process, and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation from radioactive materials because it resulted in unintended internal doses. The finding was processed through the Occupational Radiation Safety Significance Determination Process and determined to be of very low safety significance (Green) because it was not an as low as is reasonably achievable finding, there was no overexposure or substantial potential for an overexposure, and the ability to assess the dose was not compromised. Additionally, this finding had a cross-cutting aspect in the area of human performance associated with the component of work control because the licensee failed to coordinate work activities by incorporating actions to address the impact of the work on different job activities and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance.

Inspection Report# : [2006005](#) (*pdf*)

Public Radiation Safety

Physical Protection

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

Miscellaneous

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