

## D.C. Cook 1

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### Initiating Events

**Significance:**  Jun 19, 2002

Identified By: NRC

Item Type: FIN Finding

#### **Failure to Perform Switchyard Current Transformer Preventive Maintenance in Accordance with Vendor Recommendations**

The inspectors identified a finding of very low safety significance for the failure to perform preventive maintenance on 345 kV switchyard current transformers in accordance with vendor recommended schedules without adequate justification for the deviations. Specifically, the licensee tested 345 kV current transformers less frequently than recommended by the vendor and did not perform several recommended tests. The inspectors determined that this finding did not constitute a violation of NRC requirements. The inspectors concluded that testing switchyard equipment less frequently than recommended by the vendor credibly affected the objective of the initiating events cornerstone of reactor safety. Performance of preventive maintenance testing that was less conservative than vendor recommendations could result in the failure to detect and repair component degradation, which could increase the likelihood of component failures. Consequently, the inspectors concluded that this issue could increase the loss of offsite power events and limit the ability of the licensee to mitigate power grid instability events. However, due to the availability of redundant power supplies to safety-related equipment, the inspectors determined that this issue was of very low safety significance.

Inspection Report# : [2002007\(pdf\)](#)

**Significance:** N/A Jun 30, 2001

Identified By: NRC

Item Type: FIN Finding

#### **Supplemental Inspection - White PI for Unplanned Power Changes Greater Than 20 Percent**

The PI crossed the Green-White threshold of more than six unplanned power changes greater than 20 percent per 7,000 hours of critical operation following an unplanned power change in March 2001. While the rate per 7,000 hours of critical operation was exceeded, the number of unplanned power changes was three due to the PI becoming valid at 2,400 hours of critical operation. The first Unit 1 unplanned power change greater than 20 percent was due to a failed power supply in the Solid State Protection System (SSPS). The second Unit 1 unplanned power change greater than 20 percent was due to a steam leak on a non-vital secondary side steam line level switch. The third Unit 1 unplanned power change greater than 20 percent was due to fouled main feedwater pump condensers. The inspector determined that licensee personnel adequately identified the problems that resulted in the three unplanned power changes. The licensee's follow-up investigation demonstrated that the root and contributing causes were properly identified. Licensee personnel assessed the three individual problems collectively and determined that there were no generic issues.

Inspection Report# : [2001012\(pdf\)](#)

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### Mitigating Systems

**Significance:**  Jun 30, 2002

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

### **Failure to Implement Adequate Foreign Material Exculsion Controls Resulted in Degradation of Unit 1 West ESW Pump**

A Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed following the identification of foreign material in the Unit 1 West essential service water (ESW) pump. On June 24, 2002, the licensee identified a rapid degradation in the performance of the Unit 1 West ESW pump. Subsequent investigation identified that plastic barrier tape, a foreign material, had been ingested by the pump and had become wound tightly around the pump's impeller. The inspectors concluded that the licensee failed to establish appropriate work controls to control foreign material in areas adjacent to the Unit 1 West ESW pump in accordance with the requirements of PMI-2220, "Foreign Material Exclusion." The inspectors evaluated this failure to establish appropriate foreign material controls in the vicinity of the Unit 1 West ESW pump using the Significance Determination Process. The inspectors determined that this issue had a credible impact on safety and was more than a minor concern. Specifically, ingestion of foreign material by the Unit 1 West ESW pump degraded pump performance and rendered the pump inoperable, which affected the reliability and capability of the ESW system. The safety function of the ESW system is to provide sufficient cooling capacity for continued operation of safety-related equipment during normal and accident conditions. Consequently, the inspectors determined that this issue affected the objectives of the mitigating systems cornerstone. The inspectors concluded that this issue did not result in an actual loss of the safety function of a single train of ESW for greater than the TS allowed outage time. Additionally, because of the continued availability of ESW capability from both of the Unit 2 ESW trains and the Unit 1 East ESW train, the inspectors concluded that the foreign material ingestion did not result in an actual loss of the ESW system safety function. Consequently, the inspectors concluded that this issue was of very low safety significance.

Inspection Report# : [2002003\(pdf\)](#)

**Significance:** TBD May 17, 2002

Identified By: NRC

Item Type: AV Apparent Violation

### **Essential Service Water Strainer Maintenance Instructions Not Appropriate to the Circumstances**

Documented instructions for essential service water (ESW) pump discharge strainer maintenance did not contain adequate detail regarding critical parameters for basket installation. Consequently, faulty strainer basket installation practices contributed to the failure of an ESW pump discharge strainer basket and created the potential for debris to bypass the strainer and enter the ESW system. On August 29, 2001, the failed Unit 1 East ESW pump discharge strainer, in conjunction with the ESW system alignment with all normal and alternate diesel generator (D/G) ESW supply valves open, caused significant debris fouling of the D/G heat exchangers. While operator actions prevented the debris fouling from causing a complete loss of the D/Gs ability to perform their emergency AC power safety function, the potential for a complete loss of all emergency AC power during a loss of offsite power was determined to exist. This finding was assessed using the applicable SDP as a potentially safety significant finding that was preliminarily determined to be of substantial safety significance.

Inspection Report# : [2001017\(pdf\)](#)

**Significance:**  May 17, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

### **Human Performance Weakness During the Degraded Essential Service Water Event of August 29, 2001 Associated with Control Board Monitoring and Procedural Adherence**

The inspectors identified a Non-Cited Violation of Technical Specification (TS) 6.8.1 associated with operator procedural adherence deficiencies during the degraded essential service water event of August 29, 2001. Specifically, the operators failed to (1) effectively monitor the control boards for changing indications, adverse trends, and abnormal indications, (2) effectively communicate receipt of an abnormal temperature alarm for the component cooling water

(CCW) heat exchanger, and (3) enter the CCW abnormal operating procedure as directed by the abnormal temperature alarm response procedure. The inspectors determined that the failure to adequately implement procedures associated with control board monitoring, logkeeping, and annunciator response had a credible impact on safety and therefore were more than a minor concern. Specifically, these issues could reasonably result in the failure to identify and promptly correct degradation of safety related equipment and therefore impact the reliability and availability of a safety system. Because these performance deficiencies contributed to delays in identifying degradation of the ESW and CCW mitigating systems, the inspectors determined that these human performance weaknesses were associated with the mitigating systems cornerstone. Although this issue adversely impacted the licensee's response to the August 29, 2001 event, none of the performance deficiencies directly resulted in the actual loss of safety system function or the loss of a single safety system train for greater than its TS allowed outage time. Consequently, the inspectors concluded that this issue was of very low safety significance.

Inspection Report# : [2001017\(pdf\)](#)

**Significance:**  Apr 23, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Take Prompt Corrective Action to Resolve a Degraded Condition of the Unit 1 East Motor Driven Auxiliary Feedwater Pump Room Cooler**

The inspectors identified a Green finding that is being treated as a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure to take prompt corrective action to resolve a degraded condition of the control circuitry on the Unit 1 East Motor Driven Auxiliary Feedwater Pump room cooler. This finding was determined to be of very low safety significance because the finding: (1) was not a design or qualification deficiency; (2) did not result in a loss of function of a single train of the auxiliary feedwater mitigating system for greater than its Technical Specification allowed outage time in that necessary repairs for the room cooler following the August 21, 2001, failure were completed within the allowed outage time. Also, the auxiliary feedwater pump room temperatures were maintained within the required temperature bands during the February 2001 failure; (3) did not represent an actual loss of the auxiliary feedwater system safety function; (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event in that the finding did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather initiating event; and (5) did not involve the loss of a safety function that contributed to external event initiated core damage accident sequences.

Inspection Report# : [2002004\(pdf\)](#)

**Significance:**  Apr 23, 2002

Identified By: NRC

Item Type: FIN Finding

**Failure to Consistently Identify a Reasonable Apparent Cause for Conditions Adverse to Quality**

The inspectors identified a Green finding for the failure to consistently identify reasonable apparent causes for conditions adverse to quality. The inspectors determined that the failure to consistently identify reasonable apparent causes for conditions adverse to quality could have had a credible impact on safety by affecting the availability, reliability, operability or functionality of mitigating equipment. This inspector identified finding was determined to be of very low safety significance because the finding: (1) was not a design or qualification deficiency; (2) did not result in a loss of function of a single train of any mitigating systems for greater than its Technical Specification allowed outage time and did not represent an actual loss of the safety function for any mitigating system; (3) did not represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk significant per 10 CFR 50.65 for greater than 24 hours; (4) did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event in that the finding did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather initiating event; and (5) did not involve the loss of a safety function that contributed to external event initiated core damage accident sequences.

Inspection Report# : [2002004\(pdf\)](#)

**Significance:**  Dec 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Correct a Long Standing Design Deficiency Associated with 4.16 kV Breakers Momentary Interrupting Rating Capability**

The inspectors determined that the licensee failed to address a design deficiency on the Unit 1 and the Unit 2 safety-related 4.16 kV circuit breakers in a timely manner. This design deficiency could result in exceeding the 4.16 kV circuit breaker's momentary interrupting rating capability during a 3-phase bolted fault condition. This concern was initially noted by the licensee in 1988, was identified again by the NRC during a Safety System Functional Inspection in 1990, and during an Electrical Distribution Safety Functional Inspection in 1992. The failure to properly evaluate and correct this degraded condition is a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI. The inspectors evaluated the risk significance of this issue using the Significance Determination Process. Because no actual loss of safety function occurred, the low probability of failure, and system redundancy, this issue screened as Green (very low risk significance) after a Phase 1 Significance Determination Process review.

Inspection Report# : [2001019\(pdf\)](#)

**Significance:** N/A Dec 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Ensure That Breaker Coordination and Selective Tripping was Provided at the 4.16 kV System**

No Color. The inspectors identified a Non-Cited Violation for failure to ensure that coordination and selective tripping was provided in accordance with the Safe Shutdown Capability Assessment. The current transformers for protective relaying at the 4.16 kV level were undersized and could reach saturation conditions if a bolted fault were to occur on the associated cabling. This condition could result in inadvertent tripping of 4.16 kV circuit breakers supplying safe shutdown equipment. The failure to ensure coordination and selective tripping is a violation of the D. C. Cook Operating License Section 2.C.(4) for Unit 1 and Section 2.C.(3)(0) for Unit 2. The finding was determined to be No Color because the finding was not suitable for Significance Determination Process evaluation because it did not involve the impairment or degradation of a fire protection feature.

Inspection Report# : [2001019\(pdf\)](#)

**Significance:**  Sep 30, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Surveillance Procedure During ESW Flow Balancing in October 2000**

A Non-Cited violation was identified for the failure to follow a surveillance procedure during Essential Service Water (ESW) system flow balancing in October 2000. Specifically, the licensee failed to properly position the ESW supply valve to the Unit 1 West Component Cooling Water (CCW) heat exchanger, 1-WMO-733, during flow balancing of the ESW system. The improperly positioned valve would have resulted in the heat exchanger receiving less than the required amount of ESW flow during an Engineered Safeguards Features Actuation. The inspectors concluded that the licensee's failure to position 1-WMO-733 as required by the ESW flow balance procedure constituted a non-cited violation of Technical Specification 6.8.1. The inspectors evaluated the risk significance of this issue using the Significance Determination Process. Because reasonable operator action could have been taken to maintain the CCW heat exchanger safety function, no actual loss of safety function occurred. Consequently, this issue was screened as Green (very low risk significance) after a Phase 1 Significance Determination Process review.

Inspection Report# : [2001016\(pdf\)](#)

**Significance:** N/A Aug 18, 2001

Identified By: NRC

Item Type: FIN Finding

**Failed to Adequately Identify and Resolve Conditions Adverse to Quality on Unit 1 West AFW and the Unit 2 Safety-Related Ventilation System**

The inspectors identified that the licensee failed to adequately identify and resolve conditions adverse to quality on the Unit 1 West auxiliary feedwater system and the Unit 2 safety-related ventilation system which could have a credible impact on safety if left uncorrected. The inspectors determined that licensee performance weaknesses in the problem identification and resolution area do not impact a specific reactor safety cornerstone. However, the inspectors concluded that these additional failures to correct conditions adverse to quality provide substantive information relating to the problem identification and resolution cross-cutting area. Additionally, these issues relate to a previously identified finding regarding the licensee's failure to implement adequate corrective actions for Maintenance Rule violations (FIN 50-315/01-07-02). Because of the historical finding and the cross-cutting aspects of problem identification and resolution, the inspectors concluded that these additional corrective action program weaknesses constituted a NO-COLOR Finding.

Inspection Report# : [2001014\(pdf\)](#)

**Significance:**  Aug 18, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement Corrective Actions to Prevent Recurrence of Water Intrusion into AFW Pump Bearing Oil**

A Non-Cited Violation was identified for the failure to implement corrective actions to prevent repetitive occurrences of water intrusion into the Unit 1 West motor driven auxiliary feedwater pump (MDAFWP) bearing housing. Specifically, in 1998, the licensee identified the potential for water intrusion into the auxiliary feedwater pump bearing housings; however, the licensee failed to implement effective corrective actions to prevent recurrence of bearing water intrusion. Subsequently, water contamination of the bearing oil was identified on February 1, 2001 and July 2, 2001. The inspectors determined that water intrusion into the MDAFWP bearing housing constituted a significant condition adverse to quality. Therefore, the inspectors concluded that this failure constituted a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI. The inspectors evaluated the risk significance of this issue, using the Significance Determination Process, and concluded that water intrusion into the AFW pump bearing could affect the reliability of the auxiliary feedwater system. Because the inspectors promptly identified this issue, the licensee mitigated bearing water intrusion prior to an actual loss of auxiliary feedwater pump operability. Consequently, this issue was screened as (very low safety significance) after a Phase 1 Significance Determination Process review.

Inspection Report# : [2001014\(pdf\)](#)

**Significance:**  May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Non-Conservative Acceptance Criteria Used In Seal Injection Line Resistance Surveillance Procedure**

A Non-Cited violation was identified for the failure to ensure that the acceptance criteria contained in test procedures associated with the measurement of the reactor coolant seal injection line resistance adequately incorporated limitations associated with steam generator replacement and instrument uncertainty. Specifically, the licensee failed to identify that the requirements of Technical Specification 4.4.6.2.1.c were non-conservatively impacted by installation of replacement steam generators. Additionally, the test acceptance criteria did not adequately consider instrument uncertainty over the range of expected test conditions. The inspectors evaluated the risk significance of this issue using the Significance Determination Process. Based on a review of recent test data, the inspectors determined that the impact of this failure was bounded by existing margin. Therefore, this issue did not result in inoperability of the controlled



leakage charging flow path. Consequently, this issue was screened as GREEN (very low risk significance) after a Phase 1 Significance Determination Process review.

Inspection Report# : [2001009\(pdf\)](#)

**Significance:** N/A Apr 24, 2001

Identified By: NRC

Item Type: FIN Finding

**Failure To Evaluate Whether Adjustments Were Necessary Such That There Would Be An Appropriate Balance Between Systems' Availability And Reliability In Accordance With 10 CFR 50.65 (a)(3)**

NO COLOR. The inspectors identified a failure to evaluate whether adjustments were necessary such that there would be an appropriate balance between systems' availability and reliability in accordance with 10 CFR 50.65 (a)(3) of the maintenance rule. The safety significance of the specific finding was very low because it did not affect the operability of the systems, and the licensee entered the finding in the corrective action program. However, there was a regulatory concern with the maintenance rule program due to the extend the problems identified in this and previous NRC inspection reports.

Inspection Report# : [2001010\(pdf\)](#)

**Significance:**  Apr 18, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure To Place Unit 1 W MDAFP and TDAFP Trains In Maintenance Rule Category (a)(1)**

A non-cited violation was identified for the failure to demonstrate that the performance of the auxiliary feedwater (AFW) system had been effectively controlled by the preventive maintenance program. The inspectors concluded that this was a violation of 10 CFR 50.65 (a)(2). The licensee failed to identify and properly account for maintenance preventable functional failures (MPFFs) associated with the Unit 1 West motor drive auxiliary feedwater train and one repetitive MPFF associated with the turbine driven AFW pump train. The inspectors concluded that the performance and condition of Unit 1 AFW was not being effectively controlled through the performance of appropriate preventive maintenance. The inspectors evaluated the risk significance of this issue using the Significance Determination Process. The AFW system was relied upon to support secondary heat removal following a loss of normal feedwater and therefore was within the mitigating systems cornerstone. The inspectors determined that the failure to recognize, monitor and correct ineffective maintenance practices could adversely impact the performance of a risk significant SSC. However, the inspectors concluded that this failure did not result in a total loss of the secondary heat removal safety function due to availability of redundant AFW trains. Additionally, reliability failures that could be attributable to ineffective maintenance activities occurred during conditions not requiring secondary heat removal or were repaired within the TS allowed outage time. Therefore, this issue was screened as GREEN (very low risk significance) after a Phase 1 Significance Determination Process review. Although the risk significance of this issue was very low, the inspectors concluded that this was more than a minor concern because the failure to recognize and correct ineffective maintenance practices could result in decreased reliability and increased unavailability of the AFW system.

Inspection Report# : [2001007\(pdf\)](#)

**Significance:**  Feb 16, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Green - Failure to perform a review to verify the impact of tube plugging on the HX design differential pressure limit in a calculation for all safety related HXs**

One Non-Cited Violation of 10 CFR Part 50 Appendix B, Criterion III "Design Control" was identified, for failure to perform a review to verify the impact of tube plugging on the heat exchanger design differential pressure limit in a calculation for all safety related heat exchangers. (Green) Failure to assess the impact of tube plugging on the

maximum design differential pressure limit is considered more than minor, because heat exchangers could be returned to service with excessive differential pressure. Excessive differential pressure could cause internal structural component failure and loss of heat exchanger function. The safety significance of this finding was very low because only the mitigating systems cornerstone is affected and systems remained operable (1R07.b.4).

Inspection Report# : [2001004\(pdf\)](#)

**Significance:**  Feb 16, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**2 Green Findings - Failure to identify nonconforming conditions associated with operation of the Unit 1 east CTS HX with dented tubes and operation of the Unit 2 east CCW HX with blocked tubes.**

One Non-Cited Violation of 10 CFR Part 50 Appendix B, Criterion XVI "Corrective Action" was identified, for failure to identify nonconforming conditions associated with dented tubes in the Unit 1 east containment spray heat exchanger and blocked tubes in the Unit 2 east component cooling water heat exchanger. (Green) Failure to evaluate dented tubes in the containment spray heat exchanger was considered more than minor because flaw detection was challenged. If flaws were left in service, the flawed tubes could fail, causing an uncontrolled release of radioactivity and loss of heat exchanger function. (Green) Failure to evaluate the remaining component cooling heat exchanger capability due to blocked tubes, was considered more than minor, because blocked tubes degrade the heat exchanger's capability to remove post accident heat loads. The safety significance of these findings was very low because only the mitigating systems cornerstone is affected and systems remained operable (1R07.b.1).

Inspection Report# : [2001004\(pdf\)](#)

**Significance:**  Feb 16, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**2 Green Findings - Failure to identify nonconforming conditions associated with operation in excess of the maximum design differential pressure for the Unit 2 east CCW HX and the Unit 1 east CTS HX**

One Non-Cited Violation of 10 CFR Part 50 Appendix B, Criterion XVI "Corrective Action" was identified, for failure to identify nonconforming conditions associated with operation in excess of the maximum design differential pressure for the Unit 2 east component cooling water heat exchanger and the Unit 1 east containment spray heat exchanger. (Green) Exceeding the maximum design differential pressure limit for the component cooling water heat exchanger was considered more than minor, because it could cause divider plate failure potentially rendering the heat exchanger inoperable. (Green) Exceeding the maximum design differential pressure limit for the containment spray heat exchanger was considered more than minor because it was indicative of heat exchanger fouling, which could degrade the heat removal capability and potentially result in internal tube support structural failures. If the internal support structures fail, they could block flow and render the heat exchanger inoperable. The safety significance of these findings was very low because only the mitigating systems cornerstone is affected and systems remained operable (1R07.b.2).

Inspection Report# : [2001004\(pdf\)](#)

**Significance:**  Feb 16, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**2 Green Findings - Failure to implement actions to prevent recurrence of failed CTS HX tubes caused by microbiologically induced corrosion and the CCW HX divider plate weld cracking**

One Non-Cited Violation of 10 CFR Part 50 Appendix B, Criterion XVI "Corrective Action" was identified, for failure to implement actions to prevent recurrence of; failed containment spray heat exchanger tubes caused by

microbiologically induced corrosion, and cracking of the component cooling water heat exchanger divider plate welds. (Green) Lack of action to preclude continued microbiologically induced corrosion of the containment spray heat exchanger tubes was considered more than minor because it could result in tube failures, which would result in an uncontrolled release of radioactivity and loss of heat exchanger function. (Green) Lack of action to preclude recurrence of divider plate weld cracking was considered more than minor because it could lead to divider plate failure, which would render the component cooling water heat exchangers inoperable. The safety significance of these findings was very low because only the mitigating systems cornerstone is affected and systems remained operable (1R07.b.3).

Inspection Report# : [2001004\(pdf\)](#)



**Significance:** Dec 04, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Properly Set Relief Valves Installed in Unit 1 Motor Operated Valves During a Design Change**

During review of a design change, the team identified improperly set relief valves installed in two Unit 1 motor operated valves, which was considered a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, "Design Control." The licensee had not yet operated Unit 1 with this design change and for the current plant mode, operability of these valves was not required. Therefore, this finding was determined to be of very low safety significance. This issue was considered more than minor, because if it was left uncorrected, it could have impacted the function of these valves, which affect safe operation of the plant at power

Inspection Report# : [2000021\(pdf\)](#)



**Significance:** Nov 11, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement Corrective Actions Required By Maintenance Rule on the Radiation Monitoring System**

A non-cited violation was identified for the failure to implement corrective actions for the Radiation Monitoring System (RMS). The RMS had been previously categorized under 10 CFR 50.65 as a Maintenance Rule (a)(1) system with established performance goals. The licensee failed to implement appropriate corrective actions as required by 10 CFR 50.65 (a)(1) after the RMS failed to meet the established performance goals. The failure to implement corrective actions for the RMS was significant in that the simultaneous loss of both control rooms' RMS control terminals resulted in the loss of all RMS indication and alarm functions. This issue was determined to be of very low risk significance because the simultaneous RMS control terminal failures did not result in an actual loss of a safety function equipment for greater than 24 hours.

Inspection Report# : [2000022\(pdf\)](#)



**Significance:** Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure To Place Unit 2 250 VDC In Maintenance Rule Category (a)(1) After Multiple Maintenance Preventible Functional Failures**

A non-cited violation was identified for the failure to demonstrate that the performance of the 250 VDC system had been effectively controlled through the performance of appropriate preventive maintenance. Specifically, the licensee failed to identify and properly account for maintenance preventable functional failures of 250 VDC control power fuse blocks. The inspectors identified that the licensee had mis-classified a maintenance related failure of a 250 VDC fuse block on a diesel generator output breaker. The inspectors identified that three additional maintenance preventable functional failures associated with fuse blocks have occurred since May 1999. The performance criteria allowed no maintenance preventable functional failures over a 24-month period. The inspectors determined that these fuse block



failures could have had a credible impact on safety and could become a more significant safety concern if left uncorrected.

Inspection Report# : [2000020\(pdf\)](#)

**Significance: SL-IV** Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Monitor the Unavailability of 46 Systems Required During Shutdown Mode Operation**

A non-cited violation was identified for the failure to demonstrate that the preventative maintenance program effectively controlled the performance of systems required to be functional during shutdown conditions. The licensee suspended monitoring of unavailability for structures, systems, and components (SSCs) within the scope of the Maintenance Rule during the September 1997 through June 2000 dual unit extended outage. The failure to monitor shutdown system unavailability impacted the Maintenance Rule monitoring of 46 systems required during shutdown. Since the licensee failed to monitor the performance of SSCs, the reliability of systems and effectiveness of the licensee's maintenance program could not be demonstrated.

Inspection Report# : [2000020\(pdf\)](#)

**Significance: SL-IV** Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish Performance Goals for the Chemical and Volume Control System, a Maintenance Rule (a) (1) System**

A non-cited violation was identified for the failure to establish performance goals for the Unit 1 Chemical and Volume Control System (CVCS) monitored per the Maintenance Rule under 10 CFR 50.65(a)(1). The failure to establish performance goals for the Unit 1 CVCS was significant in that without established goals the licensee could not demonstrate the effectiveness of maintenance to assure reliability of the system.

Inspection Report# : [2000020\(pdf\)](#)

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## Barrier Integrity



**Significance:** Jun 30, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Measure Unit 1 Lower Ice Condenser Inlet Door Opening Torque and Closing Torque in Accordance TS Requirements**

The inspectors identified a Non-Cited Violation of Unit 1 Technical Specification (TS) 4.6.5.3.1.b.3, 4.6.5.3.1.b.4, and 4.6.5.3.1.b.5 requirements associated with testing of the ice condenser lower inlet doors. Contrary to the TS requirements, previous TS 4.6.5.3.1.b surveillance testing performed in Unit 1 on November 21, 2000, failed to adequately measure the door opening torque and the door closing torque in accordance with the TS requirements. Specifically, the methodology used by the licensee to perform TS 4.6.5.3.1.b.3 and 4.6.5.3.1.b.4 testing resulted in door closing torques that were greater in magnitude than the door opening torques, contrary to the TS description of these torque values. The inspectors identified that the measured opening torque values for 36 of 48 Unit 1 lower inlet doors were less than the associated door closing torque values. Because calculation of the door frictional torque required accurate measurement of the door opening and closing torques, the licensee was unable to demonstrate compliance with the requirements of TS 4.6.5.3.1.b.5. The inspectors assessed this finding using the Significance Determination Process. The inspectors determined that the failure to adequately implement TS 4.5.6.3.b requirements for testing of the Unit 1 lower inlet doors had a credible impact on safety and was more than a minor concern. As stated in the TS 3.6.5

bases, operability of the ice condenser doors ensures that reactor coolant fluid released during a loss of coolant accident (LOCA) will be diverted through the ice condenser bays for heat removal. The ice condenser also augments the containment recirculation sump water inventory in the event of certain small break LOCAs and limits ice maldistributions within the ice condenser. Because the proper functioning of the ice condenser lower inlet doors was primarily associated with the heat removal function of the ice condenser, the inspectors determined that this issue was associated with the barrier integrity cornerstone. Based on a review of additional testing results for the Unit 1 lower inlet doors performed in May 2002, the inspectors concluded that there was no actual reduction in the atmospheric pressure control function of the reactor containment nor a loss of capability to provide additional recirculation sump inventory during certain small break LOCAs. Therefore, this issue was determined to be of very low safety significance.

Inspection Report# : [2002003\(pdf\)](#)



**Significance:** Jun 30, 2002

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

### **Pressurizer Power Operated Relief Valves Inoperable Due to Mis-Positioned Control Switches**

A Non-Cited Violation of Unit 1 Technical Specification 3.4.11.c was self-revealed. An operator incorrectly positioned the control switches for pressurizer power operated relief valves (PORVs) 1-NRV-152 and 1-NRV-153, rendering the valves unavailable for automatic pressure control. With Unit 1 in Mode 1 and two PORVs inoperable due to causes other than excessive seat leakage, the licensee failed to restore at least one of the inoperable PORVs to operable status within the following 72 hours or be in Hot Standby within the next 6 hours and in Hot Shutdown within the following 6 hours. The inspectors assessed this event using the Significance Determination Process (SDP). The inspectors determined that this issue had a credible impact on safety because the two PORVs were not capable of automatically controlling reactor coolant system (RCS) pressure below the setting of the pressurizer code safety valves, thereby reducing challenges to these valves. At the time of this event, the third pressurizer PORV (1-NRV-151) was already unavailable (automatic function only) with its manual isolation valve closed due to excessive seat leakage. Therefore the automatic function of all three PORVs was disabled. Although all three PORVs were not capable of automatic operation, the valves were still capable of manual operation to mitigate a steam generator tube rupture accident or as an alternate means of decay heat removal during plant shutdown. The inspectors concluded that this issue affected the operability of the pressurizer PORVs, which are barrier integrity components under the SDP designed to maintain the integrity of the RCS. The inspectors performed a Phase 2 SDP analysis for this finding using the following assumptions: (1) manual operation of the PORVs for primary heat removal using the feed and bleed safety function was not affected; therefore, the inspectors only evaluated the Anticipated Transients Without Scram (ATWS) initiator which considered the primary relief safety function; (2) the duration of the performance deficiency was 13 days; and (3) operator action to manually actuate the failed automatic function of the PORVs was credited. Results of the Phase 2 ATWS worksheet determined that only one accident sequence was affected and resulted in this issue being characterized as having very low safety significance. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, Attachment 1, Step 2.6, the SDP results were not evaluated for potential risk contribution due to Large Early Release Frequency because the accident sequence result was less than 1E-7 per year.

Inspection Report# : [2002003\(pdf\)](#)



**Significance:** Feb 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

### **Violation of 10 CFR Part 50.55a(g)(5)iii for Failure to Obtain NRC Concurrence Associated With Incomplete Nondestructive Weld Examinations**

A Non-Cited Violation of 10 CFR 50.55a(g)(5)(iii) was identified for failure to obtain NRC concurrence (Code relief) associated with incomplete weld examinations. This finding had the potential to affect the barrier integrity and

initiating events cornerstones and was more than minor because, the reduced examination of welds was left uncorrected, which could result in operation with undetected flaws affecting the reactor coolant system pressure boundary. Because this finding did not result in degradation of the reactor coolant system pressure boundary, the risk significance was very low as determined by the Reactor Safety Significance Determination Process.

Inspection Report# : [2001020\(pdf\)](#)

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## Emergency Preparedness

**Significance:**  Aug 18, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to perform a semiannual Augmentation drill for 1999**

Green. The licensee failed to conduct an off-hours, unannounced staff augmentation drill during the second half of calendar year 1999, which resulted in a Non-Cited Violation of NRC requirements. Although this failure resulted in a missed demonstration of the licensee's augmentation capabilities, it was not an indication that either the emergency preparedness planning standard in 10 CFR 50.47(b)(2) was not met or that the off-hours augmentation methodology could not be implemented. Specifically, off-hours, staff augmentation drills were successfully conducted during the first half of 1999 and the first half of year 2000. Based on the above factors, the failure to conduct an augmentation drill during the second half of 1999 was of very low safety significance.

Inspection Report# : [2000014\(pdf\)](#)

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## Occupational Radiation Safety

**Significance:**  Jun 30, 2002

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

### **Failure to Implement All Intended Radiological Engineering Controls During Steam Generator Eddy Current Testing, as Required by 10 CFR 20.1701**

A Non-Cited Violation of 10 CFR 20.1701 was identified for the licensee's failure to utilize all intended radiological engineering controls to limit the concentration of radioactive material in air during steam generator eddy current testing, resulting in intakes to four workers. This finding was determined to be of very low safety significance since radiation exposures to involved workers were low relative to regulatory limits, and because radiological conditions were not of a magnitude sufficient to create a substantial potential for an overexposure.

Inspection Report# : [2002003\(pdf\)](#)

**Significance:** N/A Feb 16, 2001

Identified By: NRC

Item Type: FIN Finding

### **ALARA Program Problem Identification and Corrective Action Timeliness**

Failure to identify and correct programmatic deficiencies with the ALARA program in a timely manner. Programmatic deficiencies with the routine operational ALARA program existed for an extended period of time, before they were adequately identified and corrective actions were initiated.

Inspection Report# : [2001006\(pdf\)](#)

**Significance:**  Aug 18, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Radiological Survey for Transfer of Highly Contaminated Filters**

The licensee failed to evaluate the potential for airborne radiological hazards associated with the loading of highly contaminated filters into a high integrity container, which resulted in the unplanned intakes of radioactive materials. The inspector identified a Non-Cited Violation for the failure to perform an adequate radiological survey as required by 10 CFR 20.1501. The issue was of very low safety significance because the actual exposures to the workers were below the 10 CFR Part 20 limits and the radiological source term present and the work activities performed would not have constituted a significant potential for an overexposure. (Section 20S1.3)

Inspection Report# : [2000018\(pdf\)](#)

**Significance:**  Aug 18, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Perform/Record HRA Key Inventories**

The inspector identified that on four occasions in July and August of 2000, the licensee had not performed or had not documented inventories of high radiation area (HRA) keys, which resulted in a Non-Cited Violation for the failure to follow procedures. The issue was of very low safety significance because no problems with inventories were noted prior to and after the identified omissions, which indicated that HRA keys were not lost or misused during the stated period of times. In addition, personnel entering the radiologically controlled area were required to have electronic dosimetry. The electronic dosimeters would have provided an indication of an increased exposure had an individual improperly entered such an area and would have reduced the potential for an overexposure. (Section 20S1.4)

Inspection Report# : [2000018\(pdf\)](#)

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## Public Radiation Safety

**Significance:**  Dec 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Meet Analytical Detection Capabilities for Numerous Radiological Environmental Samples Collected Between the Third Quarter of 2000 and the First Quarter of 2001**

A Non-Cited Violation of Technical Specification 6.8 was identified for the failure to meet Offsite Dose Calculation Manual (ODCM) required radioanalytical detection capabilities for some environmental samples collected during the third and fourth quarters of 2000, and the first quarter of 2001. This finding included a cross-cutting element as a contributing factor related to the timeliness of the licensee's corrective actions, since the sample analytical problems were known but not effectively corrected for an extended period. Although the licensee's ability to evaluate the environmental impact from some exposure pathways was impaired, this finding was determined to be of very low safety significance because the majority of sample analyses satisfied detection requirements to enable the overall impact on the environment from actual plant effluents to be assessed.

Inspection Report# : [2001019\(pdf\)](#)

**Significance:**  Aug 18, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

### **Radioactive Material Inappropriately Removed from the Restricted Area**

On three occasions during calendar year 2000, individuals removed potentially contaminated material from restricted areas before procedurally required radiological surveys were performed. The failure to adhere to the licensee's procedure for unconditional release of materials resulted in a Non-Cited Violation. Since the potential public doses from each of the three events was concluded to be much less than 1 millirem total effective dose equivalent (TEDE) and since less than five occurrences were identified, the issue was determined to be of very low safety significance. (Section 3PS1.1)

Inspection Report# : [2000018\(pdf\)](#)

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## **Physical Protection**

**Significance:**  Jan 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

### **The Inspectors Observed Some Responder Communication Problems During Force-On-Force Drills Conducted on January 10-11, 2001**

The inspectors observed some responder communication problems during force-on-force drills conducted on January 10-11, 2001. This issue represents a matter, that if left uncorrected, could result in evaluations of response performance not reflective of true capabilities

Inspection Report# : [2000026\(pdf\)](#)

**Significance:**  Jan 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

### **The Effectiveness of Protected Area Intrusion Detection System**

Performance testing of the perimeter intrusion alarm system identified some areas where the system did not effectively perform its intended function. This single issue could impact the overall effectiveness of response. The inspector identified a Non-Cited Violation for a failure to adequately perform the functions required by Section 5.3.1.1 of the NRC-approved D. C. Cook Security Plan. The inspectors also identified that the licensee's testing procedure was inadequate to identify these problems. The specific zones and problems are considered safeguards information. This is a finding because it represents a potential vulnerability of a safeguards system. This has the potential of affecting the ability of the response force to redeploy with sufficient numbers and in time to interdict an adversary before it could reach a vital target. The issue was of very low safety significance because there was no actual event and there have not been greater than two similar findings in four quarters

Inspection Report# : [2000026\(pdf\)](#)

**Significance:** N/A Oct 20, 2000

Identified By: NRC

Item Type: FIN Finding

### **Licensee corrective action for a previously identified finding was not totally effective to prevent recurrence.**

The licensee corrective actions for a previously identified finding regarding inadequate personnel authorization to vital areas was not totally effective to prevent recurrence. While the risk of unauthorized access was very low, the finding showed that the scope and focus of licensee corrective action was not totally effective to prevent reoccurrence.



Inspection Report# : [2000024\(pdf\)](#)

**Significance:**  Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Personnel Authorization to Vital Areas**

The inspector identified a Non-Cited violation involving the failure of two licensee supervisors to properly follow licensee procedural guidance regarding personnel vital area access authorization that resulted in four badged contractor personnel being authorized access to three specific vital areas even though their duties (work-related need) did not require them to access those areas. This finding was of very low safety significance because none of the individuals had gained access to the three specific vital areas

Inspection Report# : [2000024\(pdf\)](#)

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## **Miscellaneous**

**Significance:** N/A Apr 23, 2002

Identified By: NRC

Item Type: FIN Finding

### **Corrective Action Cross-cutting Finding for the Failure to Promptly Implement Effective Corrective Actions for Conditions Adverse to Quality Impacting the Mitigating Systems and Public Radiation Safety**

Several findings associated with the implementation of the corrective action program were identified within the mitigating systems and public radiation cornerstone areas. The inspectors determined that the 6 findings identified in the past 12 months indicated an adverse performance trend and had a common causal factor associated with the failure to promptly and effectively resolve conditions adverse to quality. Although the individual findings highlighted were of very low safety significance the number of findings were determined to be a substantive cross-cutting issue indicative of an adverse performance trend pertaining to implementation of the corrective action program.

Inspection Report# : [2002004\(pdf\)](#)

**Significance:** N/A Apr 23, 2002

Identified By: NRC

Item Type: FIN Finding

### **Summary Conclusion PI&R Inspection**

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 low. Significance level of identified problems was appropriately characterized and the backlog items that were reviewed revealed that resolution of problems were prioritized based on safety significance. Based on information obtained during interviews, there was no evidence that a safety conscious work environment did not exist. Root cause evaluations were thorough and appropriate corrective actions for significant conditions adverse to quality were identified. However, while implementation of corrective actions to prevent recurrence of significant conditions adverse to quality was considered adequate, a recurring issue was identified regarding the failure to implement some corrective actions as prescribed in root cause evaluations. Four of the eight apparent cause evaluations reviewed by the inspectors failed to identify a reasonable apparent cause of the problem. Therefore, the licensee's ability to consistently identify reasonable causes for conditions adverse to quality was considered inadequate which could adversely impact implementation of prompt and effective corrective actions to resolve the problem. Also, a review of previously documented findings revealed that an adverse performance trend exists regarding the ability to promptly and effectively resolve conditions adverse to quality which was considered a substantive cross-cutting issue.

Inspection Report# : [2002004\(pdf\)](#)



**Significance:** Dec 29, 2001

Identified By: NRC

Item Type: FIN Finding

### **Human Performance Weaknesses Related to Procedural Adherence and Independent Verification**

The inspectors identified a Finding of very low safety significance associated with recent licensee human performance weaknesses. Specifically, two licensee identified violations of NRC requirements occurred during this period which indicated weaknesses in the human performance cross-cutting area. The violations involved inadequate control of the impact energy of loads carried over the spent fuel pool contrary to Technical Specification requirements and the failure to adequately align the Unit 1 "B" Train diesel generator (D/G) voltage regulator for standby service. The human performance aspects of these issues are related to failures to follow procedural guidance, inadequate self checking, and the failure to perform adequate independent verifications. The inspectors assessed the safety significance of this issue using the Significance Determination Process (SDP). The inspectors concluded that these human performance weaknesses had a credible impact on safety and could become a more significant safety concern if left uncorrected. Specifically, the failure to limit the impact energy of loads carried over spent fuel could result in fuel barrier damage greater than assumed in the safety analysis following a postulated crane failure. The inspectors determined that the failure to adequately control impact energy was associated with the fuel barrier; therefore, this issue was determined to be of very low safety significance following a Phase 1 SDP. Additionally, the failure to align the diesel generator voltage regulation system for standby service could result in the failure of the diesel generator to adequately provide power to supported equipment. The inspectors determined that, based on the as-found voltage regulator settings, the Unit 1 "B" Train D/G would have been able to perform its associated safety function. Because the failure to adequately align the Unit 1 "B" Train D/G did not result in an actual loss of safety function, this issue was also determined to be of very low safety significance. Therefore, the inspectors concluded that these human performance weaknesses constituted a finding of very low risk significance based on the safety significance of the resultant issues and their impact to the cornerstones of reactor safety.

Inspection Report# : [2001019\(pdf\)](#)

**Significance:** N/A Apr 18, 2001

Identified By: NRC

Item Type: FIN Finding

### **Failure To Implement Adequate Corrective Actions For Previously Identified Maintenance Rule Violations**

The inspectors identified several examples of ineffective corrective actions for previous violations of the Maintenance Rule. Specifically, the licensee failed to properly evaluate and identify several maintenance preventable functional failures associated with the Unit 1 auxiliary feedwater system and set adequate goals for the ice condenser system. Previous violations involved the failure to properly evaluate and identify maintenance preventable functional failures of the Unit 2 250 Vdc system and failure to establish performance goals for the Unit 1 chemical and volume control system. Ineffective corrective actions for previous Maintenance Rule violations are more than a minor concern in that ineffective corrective actions could impact the ability of the licensee to adequately maintain the reliability, availability and performance of risk-significant SSCs within the scope of the Maintenance Rule. Although the inspectors determined that this issue does not impact a specific reactor safety cornerstone and did not represent a violation of NRC requirements, this corrective action weakness provided substantive information relating to the problem identification and resolution cross-cutting issue and relates to previously identified findings.

Inspection Report# : [2001007\(pdf\)](#)

**Significance:** N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

### **Annual PI&R Inspection Results**

The licensee is effective at identifying problems and initiating condition reports at an adequate threshold. The licensee's audits and assessments were effectively managed, adequately covering the subject areas, and findings and

recommendations were appropriately captured in condition reports. Generic communications were being appropriately identified for evaluation. In general, identified issues were appropriately characterized and classified, and appropriate evaluations were conducted for significant conditions adverse to quality. However, the large backlog of post-restart condition reports and inconsistent timeliness and effectiveness of root cause evaluations continue to challenge the organization. The inspectors noted several examples where effectiveness reviews for significant conditions adverse to quality had not been completed in a timely manner. In addition, although condition report evaluations ordinarily identified the correct causal factors which were effective in resolving issues, the inspectors noted several examples where corrective actions for conditions adverse to quality were not effective in preventing recurrence.

Inspection Report# : [2001003\(pdf\)](#)

**Significance:** N/A Nov 11, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Provide Adequate Clearance Isolation Results in Draindown of Between 1,800 and 3,000 Gallons From Reactor Cavity**

A non-cited violation was identified for the failure to verify the mechanical isolation for a clearance and establish energy control measures to ensure worker safety and equipment protection. Between 1,800 and 3,000 gallons of water from the reactor cavity was inadvertently drained to lower containment. The spill resulted in an unplanned radiation dose to the plant workers assigned to the cleanup. This issue was determined to be of very low risk significance because the actual worker radiation doses received as a result of this event were minimal and did not affect the licensee's ability to assess dose. The failure to establish an adequate mechanical isolation for the work activity was considered an example of a human performance issue.

Inspection Report# : [2000022\(pdf\)](#)

**Significance:** SL-IV Aug 22, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Procedural Controls With Cross-Tied 600VAC Busses**

The inspectors identified a human performance issue in that the Unit 1 Control Room operators did not notice that the 600 volt busses were drawing excessive current while cross-tied. This failure to follow procedural requirements for electrical bus current loading was considered to be a non-cited violation

Inspection Report# : [2000019\(pdf\)](#)

Last modified : August 29, 2002