

# Davis-Besse

## 4Q/2009 Plant Inspection Findings

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### Initiating Events

**Significance:**  Sep 30, 2009

Identified By: Self-Revealing

Item Type: FIN Finding

#### **LOSS OF THE SWITCHYARD J BUS DUE TO A FAULTED COUPLING CAPACITOR POTENTIAL DEVICE**

A Green self-revealed finding was identified for the failure to implement a maintenance strategy to replace a capacitive coupled potential device (CCPD) in a timely manner. The CCPD had been installed beyond the 25 year life expectancy and failed catastrophically on June 25, 2009, causing the loss of one offsite AC circuit and some burning debris. The licensee included this finding in their corrective action program as CR 09 61025. Corrective actions were initiated to trend secondary voltages on the remaining CCPDs that have been installed beyond 25 years. The six remaining CCPDs have been scheduled for replacement in November, 2009.

This finding affected the initiating events cornerstone and could be reasonably viewed as a precursor to a significant event because a CCPD failure can subject the plant to a unit trip, loss of an offsite power source or startup transformer. This finding is greater than minor because it had an actual impact of causing one offsite AC source to become inoperable. The finding was not a LOCA initiator and did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment will not be available. The burning debris in the switchyard was extinguished within a short time period, and there was not an impact on operating plant equipment because one offsite power source and the emergency diesel generators remained available throughout the event. Therefore, the finding was determined to be of very low safety significance (Green). No violation of NRC requirements occurred. This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program (P.1.d).

Inspection Report# : [2009004](#) (*pdf*)

**Significance:**  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

#### **SWITCHYARD TRANSFORMERS RETURNED TO MAINTENANCE RULE A.2 STATUS WITHOUT APPROPRIATE CORRECTIVE ACTIONS COMPLETED**

The inspectors identified a non-cited violation (NCV) of 10 CFR 50.65(a)(1), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because the licensee did not establish appropriate corrective actions to address the potential for a transformer deluge initiation due to water hammer, and provide reasonable assurance that the system was capable of fulfilling its intended function and could return to monitoring under 10 CFR 50.65(a)(2). This issue was entered into the licensee's corrective action program.

The finding is more than minor. In accordance with IMC 0612, Appendix E, "Examples of Minor Issues," Section 7, Maintenance Rule a(1) and a(2) violations are not minor because they involve structures, systems, and components (SSCs) that have demonstrated some degraded performance or condition. The finding was determined to be of very low safety significance (Green) because it does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available.

Inspection Report# : [2009002](#) (*pdf*)

**Significance:**  Mar 31, 2009

Identified By: NRC

Item Type: FIN Finding

#### **IMPROPER INSULATION REPLACEMENT CAUSES RAPID MAIN TURBINE DOWNPOWER DUE TO**

## SMOLDERING OIL-SOAKED INSULATION

A finding of very low safety significance was self-revealed when improper installation of insulation surrounding the main turbine bearing number two oil deflector caused the main turbine to be taken off-line due to smoking insulation. An insulation blanket was blocking normal air flow used for cooling the oil deflector, causing oil to carbonize and clog the oil deflector screen. This issue was caused by the lack of procedural guidance for the installation and removal of insulation from the turbine. A corrective action was initiated to create a procedure which incorporates specific guidance for removing and installing the insulation. This finding was more than minor because the issue is associated with the design control attribute of the initiating events cornerstone and affects the cornerstone objective of limiting the likelihood of events that upset plant stability. The finding was not a loss of coolant accident (LOCA) initiator and did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The finding was not considered an external event initiator. Therefore, the finding was determined to be of very low safety significance.

Inspection Report# : [2009002](#) (*pdf*)

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## Mitigating Systems

**Significance:**  Dec 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### AFW PUMP 1 OPERABILITY WITH REMOVED INSULATION

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the removal of insulation from auxiliary feedwater pump 1 turbine inlet piping which was left uninstalled for approximately 2 weeks without engineering review required by procedure. Corrective action was to replace the insulation. The finding is more than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of the auxiliary feedwater system train 1 which is designed to respond to initiating events to prevent undesirable consequences. Specifically, the removal of insulation from the auxiliary feedwater system would cause additional heat to escape from the turbine during operation and could cause reduction in assumed life of environmentally qualified (EQ) equipment within the room associated with the auxiliary feedwater system. The inspectors determined that the finding was of very low safety significance because it did not result in any inoperability of required equipment and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance, work control component, because the licensee did not appropriately coordinate auxiliary feedwater leak inspection activities and incorporate actions to address the operational impact of work activities. Specifically, the licensee did not consider, in the removal of insulation on auxiliary feedwater train 1, procedure requirements provided to ensure that insulation removal activities did not have unnecessary detrimental effects on EQ equipment (H.3(b)).

Inspection Report# : [2009005](#) (*pdf*)

**Significance:**  Dec 31, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### INCORRECT WIRING OF SERVICE WATER STRAINER STARTER 2 CONTACTOR CAUSING INOPERABILITY

A self-revealed finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to correctly install auxiliary contacts for service water strainer 2 in accordance with the appropriate instructions, procedures, and drawings. The incorrect configuration of the auxiliary contacts resulted in the strainer being unable to perform its design function. Corrective actions included replacement of the starter contactor with the auxiliary contacts in the correct configuration. The finding is more than minor because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent

undesirable consequences. Specifically, the incorrect wiring of the strainer starter contactor resulted in thermal overload trips of the strainer which caused it to be inoperable. The inspectors determined that the finding was of very low safety significance because service water train 2 remained operable and there was no loss of safety function of the service water system. The inspectors did not assign a cross-cutting aspect associated with this finding because the concern was not indicative of current plant performance. The performance deficiency occurred during a work activity performed in 2004.

Inspection Report# : [2009005](#) (pdf)

**Significance:**  Dec 31, 2009

Identified By: NRC

Item Type: FIN Finding

**FAILURE TO IMPLEMENT SPECIFIED AS-FOUND DIAGNOSTIC TESTING OF MOTOR-OPERATED VALVES**

The inspectors identified a finding of very low safety significance for the licensee's failure to implement motor operated valve (MOV) as-found testing which the licensee specified as a to-be-implemented program improvement. No violation of NRC requirements was identified. Corrective action included changing MOV preventive maintenance tasks to include as-found testing. The finding was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee's periodic testing of the capability of MOVs was required to be reviewed and adjusted to appropriately account for actuator degradation to assure MOVs operability between tests. The licensee intended to use as-found testing to verify its actuator degradation assumptions and testing intervals but failed to ensure that as found testing was being accomplished. The inspectors determined that the finding was of very low safety significance because it did not result in any inoperability of required equipment and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance, resource component, because the licensee failed to ensure that complete and accurate work packages were available to personnel. Specifically, although the licensee intended to perform as-found diagnostic testing of MOVs, as was advised in governing procedures, work order packages for preventive maintenance activities for MOVs were not modified during the pre-job review process to specify as found testing (H.2.(c)).

Inspection Report# : [2009005](#) (pdf)

**Significance:**  Apr 10, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to evaluate molded case circuit breakers that exceed their qualified life.**

The inspectors identified a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the failure to promptly identify and correct a condition adverse to quality regarding the expired qualification of molded case circuit breakers as safety-related components. Specifically, the licensee failed to identify that unqualified safety-related molded case circuit breakers were a condition adverse to quality and, as a result, the corrective actions were not prompt in that a 6 year replacement frequency was specified without an evaluation as to the acceptability of that frequency. The licensee entered this issue into its corrective action program. The inspectors determined that the finding was more than minor because the finding, if left uncorrected, would become a more significant safety concern. The finding screened as of very low safety significance (Green) because the finding was a qualification deficiency confirmed not to have resulted in loss of operability or functionality in service. This finding has a cross-cutting aspect in the area of human performance, decision making, because the licensee made a nonconservative determination that unqualified breakers were not a condition adverse to quality based on anecdotal history that suggested that no known problem existed at the time with any specific breaker.

Inspection Report# : [2009006](#) (pdf)

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# Barrier Integrity

**Significance:** **G** Dec 31, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

## **TWO REQUIRED TRAINS OF CONTAINMENT AIR COOLER FANS INOPERABLE**

A self revealed finding of very low safety significance and associated NCV of Technical Specification (TS) Limiting Condition for Operation 3.6.6, Condition E, was identified for having two required trains of containment air cooler (CAC) fans inoperable for a period longer than allowed by TS. An inadequate design change installed Potter and Brumfield (P&B) rotary relays in the containment air cooling fan circuitry. The use of the P&B relays in this application could cause a failure of the CAC to start in slow speed upon receipt of a valid safety features actuation signal. As an immediate corrective action, the operating CAC fans were shifted from fast speed alignment to the slow speed alignment used for accidents, which eliminated the relay issue and allowed them to be declared operable. The P&B relay contacts have since been modified to alter the CAC control circuitry and correct the deficiency. The finding was determined to be more than minor because the finding was similar to IMC 0612, Appendix E, Example 3.a, in that a design modification error was significant enough that the modification required revision or rework to resolve operability concerns. Specifically, the design change that installed the P&B relays in the CAC fan circuitry rendered both trains of containment air cooling inoperable. The finding affected the Barrier Integrity cornerstone since the CACs are designed to limit the pressure and temperature in containment following a design basis loss of coolant accident. The finding was determined to be of very low safety significance because the inspectors answered “no” to all four screening questions under the Containment Barrier column in IMC 0609, “Significance Determination Process,” Appendix A, Attachment 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” Table 4a. The inspectors did not identify a cross-cutting aspect associated with this finding because the concern was not indicative of current plant performance. The inadequate design change to install the P&B relays was implemented in 2001.

Inspection Report# : [2009005](#) (*pdf*)

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## Emergency Preparedness

**Significance:** **W** Nov 23, 2009

Identified By: NRC

Item Type: VIO Violation

### **Failure to Use Classification Scheme for an Alert.**

A licensee identified finding and associated Apparent Violation (AV) of 10 CFR 50.54(q) and 10 CFR 50.47(b)(4) was identified for the failure to implement the emergency classification and action level scheme during an actual event to declare an Alert after an explosion in the switchyard. The operators failed to verify, assess, and classify the situation in conjunction with the Davis-Besse Emergency Plan “Table of Emergency Action Level Conditions.” Specifically, immediately following an electrical fault and catastrophic failure of a voltage transformer in the switchyard resulting in an explosion, fires, and damage to several switchyard components which affected plant operations, the operators failed to recognize the hazard to the station’s operations met the emergency action level conditions for declaring an Alert. The station entered a Limiting Condition for Operation per Technical Specifications.

The finding was screened to be more than minor because the failure to declare an Alert adversely affected the Reactor Safety - Emergency Preparedness Cornerstone objective to ensure the licensee is capable of implementing adequate measures to protect the health and safety of the public during a radiological emergency. The performance deficiency has the attribute of Emergency Response Organization Performance associated with Actual Event Response. The performance deficiency involving the failure to properly utilize the emergency classification and action level scheme during an actual Alert meets the criteria of the Emergency Preparedness SDP for a failure to implement a risk significant planning standard of event classification. The failure to classify was a result of the licensee’s errors in recognition, was not due to competing safety-related activities, and denied offsite authorities the opportunity to make

decisions regarding protecting public health and safety. The finding was screened to be a failure to implement the risk significant planning standard associated with classification at the Alert level and was screened to be preliminarily White. Additionally, the cause of the deficiency had a cross cutting component in the area of Human Performance. Specifically, the licensee failed to make safety-significant decisions using a systematic process and failed to obtain adequate reviews on the decisions (H.1(a)). (Section 4OA3)

Final WHITE finding issued in report 05000346/2010-502 dated February 25, 2010.

Inspection Report# : [2010502](#) (*pdf*)

Inspection Report# : [2009503](#) (*pdf*)

**Significance:**  Nov 23, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Procedures for State and local Notifications**

The inspector identified a finding and an associated NCV of 10 CFR 50.54(q) and 10 CFR 50.47 (b)(5) for the licensee's failure to maintain adequate emergency procedures to comply with emergency planning requirements to ensure timely notifications to State and local governmental agencies. Although the licensee's emergency classification procedure implied that State and local notifications should be made promptly, the procedure did not prescribe the notification time frame in which a missed classification should be made; as a result, the required notifications were not completed for over four hours.

The finding was screened to be more than minor because the deficiency adversely affected the Reactor Safety - Emergency Preparedness Cornerstone objective to ensure the licensee is capable of implementing adequate measures to protect the health and safety of the public during a radiologic emergency. The deficiency has the attribute of Procedure Quality associated with procedure use in an actual event. The Failure to Comply branch of the Emergency Preparedness SDP flowchart was used because the program element for offsite notification was not adequate as designed for all types of events, such as in the case of an after-the-fact or missed event declaration. Because the emergency conditions no longer existed at the time of the event classification and notification recognition, the compliance with emergency plan requirements for notification was evaluated as non-risk significant for the switchyard event. The performance deficiency was evaluated to be a planning standard degraded function and to be Green. State and local offsite governmental officials were not able to assess conditions at the time of the late event declaration and make informed decisions concerning the offsite response. Additionally, the finding had a cross cutting component in the Human Performance area of Resources. Specifically, the licensee's procedures for notification to offsite agencies were not complete (H.2(c)). (Section 4OA3)

Inspection Report# : [2009503](#) (*pdf*)

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Physical Protection**

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

**Significance:** N/A Apr 10, 2009

Identified By: NRC

Item Type: FIN Finding

### PI&R Summary

On the basis of the sample selected for review, the team concluded that implementation of the corrective action program (CAP) was generally good. The licensee had a low threshold for identifying problems and entering them in the CAP. Items entered into the CAP were screened and prioritized in a timely manner using established criteria; were properly evaluated commensurate with their safety significance; and corrective actions were generally implemented in a timely manner, commensurate with the safety significance. The team noted that the licensee applied operating experience to station activities. Audits and self-assessments were determined to be performed at an appropriate level to identify deficiencies. On the basis of discussions and interviews conducted during the inspection, workers at the site expressed freedom to raise safety concerns.

Inspection Report# : [2009006](#) (*pdf*)

**Significance:**  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **INADEQUATE MANAGEMENT OVERSIGHT TO ENSURE SPECIFIED CORRECTIVE ACTIONS WERE BEING ACCOMPLISHED**

The inspectors identified a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," in that the licensee failed to have appropriate qualitative or quantitative measures to ensure that corrective actions specified in department directives and requirements of business practices were actually being accomplished. This contributed to further issues in the Chemistry Department with adherence to procedure requirements. This issue was entered into the licensee's corrective action program.

The finding was more than minor because if left uncorrected the finding could become a more significant safety concern and was a factor in subsequent procedure compliance and component mispositioning issues within the Chemistry department. The inspectors determined that the finding was not suitable for SDP evaluation because the failure to adhere to specified requirements or to have methods to determine adherence did not directly result in degraded or inoperable equipment. This finding was reviewed by Regional Management and determined to be of very low safety significance. This finding had a cross-cutting aspect in the area of Human Performance, Work Practices, because the licensee did not ensure adequate supervisory and management oversight of work activities of the technicians in the field and of personnel providing activities to upgrade procedures and standing orders.

Inspection Report# : [2009002](#) (*pdf*)

Last modified : March 01, 2010