

## Davis-Besse

### 1Q/2014 Plant Inspection Findings

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#### Initiating Events

**Significance:** G Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO IMPLEMENT FIRE PROTECTION PLAN REQUIREMENTS RELATED TO CONTROL OF IGNITION SOURCES**

The Inspectors identified a finding of very low safety significance and associated non-cited violations of Technical Specification (TS) 5.4.1(d) when the licensee failed to properly implement station procedures for control of ignition sources. Specifically, the inspectors identified two examples where the licensee did not adequately protect work areas containing combustible material from welding and grinding sparks generated in containment. The finding was determined to be of more than minor significance because if left uncorrected would have the potential to lead to a more significant safety concern. In particular, uncontrolled ignition sources have the potential to start a fire that could impact risk significant plant equipment. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." Because the finding involved reactor shutdown operations and conditions, the inspectors transitioned to IMC 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process - Phase 1 Operational Checklists for Both Pressurized Water Reactors (PWRs) and Boiling Water Reactors (BWRs)." Since the finding was associated with an issue that occurred during the time the reactor was in a defueled condition, the inspectors conservatively consulted all four pressurized water reactor PWR checklists (i.e., Checklists 1 – 4). The inspectors determined that the finding did not adversely impact any shutdown defense-in-depth or mitigation attributes on any checklist, nor did it meet any of the checklist specific requirements for a Phase 2 or Phase 3 Significance Determination Process (SDP) analysis. Consequently, the finding was determined to be of very low safety significance. This finding had a cross-cutting aspect in the area of human performance associated with teamwork such that individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. In particular, the licensee's standards and expectations for control of ignition sources were not adequately communicated to ensure adequate protection of combustible material. In the first example, the fire watch was unaware of the condition of the area below the welding activity. In the second example, the fire watch was generally unfamiliar with control of ignition source procedural requirements. In both cases, personnel passing by the work area observed hot sparks coming in contact with combustible material but did not communicate the condition to either the worker generating the sparks or the assigned fire watch to have the condition corrected. (H.4)

Inspection Report# : [2014002](#) (*pdf*)

**Significance:** G Dec 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **OPERATOR FAILURE TO FOLLOW PROCEDURE RESULTS IN SERVICE WATER SYSTEM TRANSIENT**

A self-revealed finding of very low safety significance and associated NCV of Technical Specification (TS) 5.4.1(a) were identified when the licensee failed to properly implement plant procedures for placing component cooling water (CCW) Pump 2 in standby status. Specifically, the licensee did not set the CCW Heat Exchanger 2 Outlet

Temperature Indicating Controller, TIC1434, to the proper set point. As a result, Service Water (SW) Train 2 header pressure significantly dropped, an automatic isolation of SW cooling to the Turbine Plant Cooling Water (TPCW) heat exchangers occurred with realignment to circulating water cooling to the heat exchangers, and the licensee entered the Loss of SW Abnormal Operating procedure. This finding was determined to be of more than minor significance because it directly impacted the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power." Using Exhibit 1, which contains the screening questions for the Initiating Events Cornerstone of reactor safety, the inspectors determined that the finding screened as very low safety significance, because it did not adversely impact any accident, transient, support system loss, steam generator tube rupture, or external event initiators. This finding has a cross cutting aspect in the area of human performance, work practices component, because the licensee failed to communicate human error prevention techniques, such as holding pre-job briefings and self and peer checking to ensure work was performed safely and personnel do not proceed in the face of uncertainty or unexpected circumstances. (H.4(a))

Inspection Report# : [2013005](#) (*pdf*)

**Significance:**  Sep 30, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

**RCP TRIP, RPS ACTUATION AND REACTOR TRIP RESULTS FROM THE INSTALLATION OF A RCP MOTOR REPAIR PART NOT SUITABLE FOR THE APPLICATION**

A self-revealed finding of very low safety significance was identified for the licensee's failure to procure and install appropriate replacement parts for repair of the Reactor Coolant Pump (RCP) 1 2 motor during the 2010 refueling outage. Specifically, a degraded terminal strip in the motor's current transformer (CT) circuit was replaced with a new terminal strip that had substandard fasteners. The licensee's procurement process did not have any provisions in place to ensure the fasteners (screws) were of the appropriate quality for the application, and some of the screws ultimately failed due to vibration induced fatigue causing a reactor trip when the RCP tripped due to an electrical fault. No corresponding violation of NRC requirements was identified.

The finding was determined to be of more than minor significance because it was associated with cornerstone attribute of design control and adversely affected the cornerstone objective: "To limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations." The finding was determined to be of very low safety significance (Green) because it resulted in a reactor trip without any corresponding loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition, and there were no other abnormal events such as fire, flooding, or high energy line breaks (HELBs). The finding had a cross-cutting aspect in the area of human performance, resources component, because the licensee had failed to ensure that the replacement terminal strip, which ultimately was cause of the reactor trip, was adequate for its service environment. (H.2(d))

Inspection Report# : [2013004](#) (*pdf*)

**Significance:**  Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**OPERATION OF THE PLANT AT POWER WITH REACTOR COOLANT SYSTEM PRESSURE BOUNDARY LEAKAGE**

A self-revealed finding of very low safety significance and an associated non-cited violation of TS 3.4.13, "Reactor Coolant System (RCS) Operational Leakage," were identified for the licensee's failure to fully evaluate a previously identified degraded condition on the first stage seal cavity vent line for RCP 1 2. Specifically, a known high vibration

condition associated with this line had caused a pinhole leak on a socket weld on the line that was repaired in June of 2012. However, the licensee's root cause evaluation and subsequent repair efforts for that leak failed to adequately address other welds on that vent line that were also subjected to the same high vibration levels, such that following an unplanned reactor trip another small RCS pressure boundary leak was discovered on a different socket weld on the same line on July 1, 2013. This finding was determined to be of more than minor significance because it was associated with cornerstone attribute of equipment performance and adversely affected the cornerstone objective: "To limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations." Since the finding was not related to pressurized thermal shock and only involved an RCS barrier (leakage) issue, it was evaluated under the Initiating Events Cornerstone and determined it to be of very low safety significance because:

- After a reasonable assessment of degradation, the inspectors determined that due to the small size of the RCP 1 2 first stage seal cavity vent line that the finding could not result in exceeding the RCS leak rate for a small loss of coolant accident (LOCA); and
- After a reasonable assessment of degradation, the inspectors determined that the finding could not have likely affected other systems used to mitigate a LOCA resulting in a total loss of their function (e.g., Interfacing System LOCA, etc.).

The finding had a cross-cutting aspect in the area of problem identification and resolution (PI&R), corrective action program (CAP) component, because the licensee had failed to thoroughly evaluate the event in June of 2012 such that the resolution addressed causes and extent of conditions. (P.1(c))

Inspection Report# : [2013004](#) (pdf)

**Significance:**  Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **OPERATIONS COMMUNICATIONS AND WORK COORDINATION ERROR RESULTS IN SERVICE WATER SYSTEM TRANSIENT**

A self-revealed finding of very low safety significance (Green) and associated NCV of TS 5.4.1(a) were identified when the licensee failed to properly implement plant procedures for placing Component Cooling Water (CCW) Pump 3 in spare status. Specifically, the licensee did not isolate service water (SW) to the standby CCW heat exchanger prior to racking out the CCW Pump 3 breaker. As a result, SW Train 1 header pressure significantly dropped, an automatic isolation of SW cooling and realignment to circulating water cooling from Turbine Plant Cooling Water (TPCW) occurred, and the licensee entered the Loss of SW Abnormal Operating procedure. The condition was corrected, and corrective action documents were generated to review the event. The inspectors determined that the licensee's failure to implement procedures for placing CCW Pump 3 in spare status was a performance deficiency that was reasonably within the licensee's ability to foresee and correct and should have been prevented. This finding was associated with the Initiating Events Cornerstone of reactor safety and was of more than minor significance because it directly impacted the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power." Using Exhibit 1, which contains the screening questions for the Initiating Events Cornerstone of reactor safety, the inspectors determined that the finding screened as very low safety significance (Green), because it did not adversely impact any accident, transient, support system loss, steam generator tube rupture, or external event initiators.

This finding was determined to have a cross-cutting aspect in the area of human performance, decision-making component, because the licensee failed to communicate decisions and the basis for decision to personnel who have a need to know the information in order to perform work safely, in a timely manner. (H.1(c))

Inspection Report# : [2013003](#) (pdf)

## Mitigating Systems

**Significance:**  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

### **CONTAINMENT ECCS RECIRCULATION SUMP RELIABILITY DEGRADED DUE TO UNFASTENED DEBRIS GATE**

The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to maintain a containment "trash" gate closed and pinned while the area was unattended and the unit was in Mode 3. Specifically, the inspectors identified Trash Gate 3, as referenced by plant procedure DB OP 03013, "Containment Daily Inspection and Containment Closeout Inspection," as being unpinned and open on February 1, 2014, when it should have been closed and pinned. The finding was determined to be of more than minor significance because it was associated with the Mitigating Systems Cornerstone and directly impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to have the trash gate closed and pinned could allow debris generated during certain design basis accidents to degrade the capability of the Emergency Core Cooling System (ECCS) recirculation sump. The inspectors used Exhibit 2 – "Mitigating Systems Screening Questions" for mitigating systems, structures, components and functionality. The finding screened out to be of very low safety significance because it was associated with a deficiency affecting the design or qualification of a mitigating system, structure, or component that did not result in a loss of operability or functionality. Specifically, the licensee had performed an analysis that concluded that the ECCS recirculation sump remained operable even with assuming additional debris reaching the upper sump screening in a post-accident environment. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution (PI&R) because the licensee's corrective actions for a previous issue were less than fully effective; the inspectors identified exactly the same issue under very similar circumstances in 2011 (see NCV 05000346/2011002-02 for additional details). (P.3)

Inspection Report# : [2014002](#) (*pdf*)

**Significance:**  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **EMERGENCY DIESEL GENERATOR NO. 2 RENDERED UNAVAILABLE BY SCHEDULED MAINTENANCE**

The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50.65(a)(4) for the licensee's failure to implement appropriate risk management actions during planned maintenance for Emergency Diesel Generator (EDG) No. 2. Specifically, field observations of the maintenance activities by the inspectors called into question the availability of EDG No. 2, which the licensee was crediting as "available" for at-power risk management purposes during the maintenance. Afterwards, it was identified that certain aspects of the planned maintenance activities should have resulted in the EDG being declared "unavailable" for a period of about an hour, and during this period the station should have entered a heightened awareness condition (yellow) for at-power risk management. The finding was determined to be of more than minor significance because it was associated with the Mitigating Systems Cornerstone of Reactor Safety and directly impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, as a result of the licensee's error, EDG No. 2 was rendered unavailable without the station entering the appropriate heightened awareness condition (yellow) for at-power risk management. The inspectors evaluated the finding using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management

Significance Determination Process.” Using Flowchart 1 – “Assessment of Risk Deficit,” the inspectors determined the finding to be of very low safety significance (Green) because the difference in incremental core damage probability (ICDP), or "risk deficit," at the station during the one-hour period when EDG No. 2 should have been unavailable and the station in a heightened awareness condition (yellow) for at-power risk management was much less than the threshold value of 1.0E-6 specified in Appendix K. This finding has a cross-cutting aspect in the area of human performance, work control component, because the licensee had failed to appropriately plan the EDG No. 2 work activities by incorporating applicable risk insights. (H.3(a))

Inspection Report# : [2013005](#) (pdf)

**Significance:**  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

### **INADEQUATE OPERATIONS CREW TURNOVER**

The inspectors identified a finding of very low safety significance for the licensee’s failure to perform an accurate and detailed shift turnover to ensure oncoming plant operators were aware of plant status. Specifically, cracks identified in two control power fuses associated with High Pressure Injection (HPI) Pump No. 2 were not communicated in the unit log or during shift turnover to the oncoming operations crew. As a result, the oncoming operating crew was unaware of the status of the cracked close control power fuses until after being questioned by the inspectors on the status of the fuses several hours into their shift. The HPI pump was subsequently declared inoperable to facilitate replacement of the control power fuses. No corresponding violation of NRC requirements was identified. The finding was determined to be of more than minor significance because it was associated with the Mitigating Systems Cornerstone and directly impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, as a result of the inadequate shift crew turnover, HPI Pump No. 2 was rendered inoperable for an additional period of time to facilitate replacement of control power fuses. The inspectors evaluated the finding using IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power.” Using Exhibit 2, which contains the screening questions for the Mitigating Systems Cornerstone of Reactor Safety, the inspectors determined that the finding screened as very low safety significance (Green) because: it was not a deficiency affecting the design or qualification of HPI Pump No. 2; it did not represent a loss of system or function; it did not represent the loss of function for any technical specification (TS) system, train, or component beyond the allowed TS outage time; and it did not represent an actual loss of function of any non TS trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program. This finding has a cross-cutting aspect in the area of human performance, decision making component, because the licensee failed to communicate decisions and the basis for decisions to personnel who have a need to know the information in order to perform work safely, in a timely manner. Specifically, the night shift crew made an operability decision on the impacts of the cracked close control power fuses on HPI Train 2 without documenting or informing the oncoming crew the basis of that decision. (H.1(c))

Inspection Report# : [2013004](#) (pdf)

**Significance:**  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **IMPACT OF A HELB IN THE TURBINE BUILDING ON SAFETY-RELATED ELECTRICAL EQUIPMENT LOCATED IN THE SWITCHGEAR ROOMS**

The inspectors identified a finding of very low safety significance and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” involving the licensee’s failure to ensure design features to protect the low and high voltage switchgear rooms, including the battery rooms, from the temperature and humidity effects of a HELB in the turbine building. Specifically, the licensee relied on non-safety-related equipment that was not verified

to function under a HELB scenario. The licensee entered the issue into their CAP, isolated the ventilation system from the turbine building, and performed an analysis that concluded the safety-related switchgear rooms would have remained within their environmental qualification limits whether or not the non-safety-related equipment functioned as designed. The performance deficiency was determined to be more than minor because it affected the Mitigating Systems Cornerstone attribute of Design Control and adversely affected the cornerstone objective of ensuring the reliability, availability and capability of systems that respond to initiating events to prevent undesirable consequences, in that the licensee did not have adequate measures in place to ensure that qualified components were available to mitigate the consequences of a HELB in the turbine building. The finding screened as of very low safety significance (Green) because the finding involved a design or qualification deficiency that did not result in a loss of operability. The inspectors identified a cross-cutting aspect associated with this finding in the area of PI&R because the licensee did not thoroughly evaluate the reliance on non-safety-related components for protecting safety-related equipment. Specifically, the 2010 evaluation did not thoroughly evaluate the capability of non safety related equipment to mitigate the consequences of a HELB in the turbine building and the possible effects of the HELB on safety-related components located in the plant's switchgear rooms. (P.1(c))

Inspection Report# : [2013004](#) (*pdf*)

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## Barrier Integrity

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

**Significance:**  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **FAILURE TO MAINTAIN WRITTEN PROCEDURES TO PROVIDE QUALITY ASSURANCE FOR EFFLUENT MONITORING**

The inspectors identified a finding of very low safety significance and an associated NCV of TS 5.4.1. Specifically, the licensee failed to maintain procedures to ensure compliance with TS 5.5.3, "Radioactive Effluent Controls Program." Corrective actions were developed in the Corrective Action Program (CAP) and implemented. The inspectors determined the finding was more than minor because it associated with the Public Radiation Safety Cornerstone and impacted cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain. The finding was assessed using IMC 0609, Attachment D, for the Public Radiation Safety Significance Determination Process (SDP) and determined to be of very low safety significance because it involved the Effluent Release Program but did not involve a failure to implement the program and did not involve a public dose greater than 10 CFR Part 50 Appendix I Criterion or 10 CFR 20.1301(e).

Inspection Report# : [2013005](#) (*pdf*)

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## Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

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