Davis-Besse
4Q/2013 Plant Inspection Findings

Initiating Events

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: G 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: G 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: G 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: G 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: G 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: G 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-citied 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)*

Significance: G Mar 31, 2013
Identified By: NRC
Item Type: FIN Finding
FAILURE TO MAINTAIN STATION BLACKOUT DIESEL GENERATOR OUTPUT CABLES IN AN ENVIRONMENT CONSISTENT WITH DESIGN
The inspectors identified a finding of very low safety significance for the licensee's failure to maintain normally energized medium voltage cables BPGD302C, C1, D, and D1 in an environment consistent with the cable design. The cables, which are output cables for the station blackout diesel generator (SBODG), were not designed for long-term water submergence, and were in an electrical manhole that was flooded for a period of several months, perhaps as long as a year or more. Continuous water submergence of energized medium voltage cables not designed for water submergence can accelerate deterioration of such cables and potentially affect the ability of the cables to withstand electrical transients. The licensee's procedures and programs for medium voltage cables did recognize the issue and provided a sump pump to address water intrusion into the electrical manhole, but did not provide for any preventative maintenance (PM) or operational checks of the sump pump to ensure its capability to meet its intended function. In response to the finding the licensee increased the frequency of monitoring for water in the manhole. No violation of NRC requirements was identified.
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 SBODG was to provide electrical power to emergency core cooling systems in the event of a loss of all alternating current power. The inspectors determined that the finding was of very low safety significance because it was not a deficiency affecting the design or qualification of the SBODG and there was no loss of any system or function due to the flooded conditions of the cables. The finding was determined to have a cross-cutting aspect in the area of Human Performance, Work Control Component, because the licensee failed to appropriately coordinate the impact of changes to the work scope or activity on the plant. Specifically, although the licensee's intent was to address potential water submergence of energized medium voltage risk-significant cables to reduce the risk of early cable failure through the installation of a permanent sump pump, the licensee failed to schedule and coordinate the appropriate PM for the pump when it was installed. (H.3(b))

Inspection Report# : 2013002 *(pdf)*

Barrier Integrity

Significance: G Mar 31, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
CONTAINMENT ISOLATION VALVE RENDERED INOPERABLE BY "WRONG COMPONENT" OPERATOR ERROR
A self-revealed finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion

V, “Instructions, Procedures, Drawings,” were identified for the licensee’s failure to properly implement the procedure for the Hydrogen Dilution System Train 1 quarterly surveillance test. Specifically, a non-licensed operator inadvertently repositioned the incorrect motor-operated valve (MOV) and caused an unplanned entry into Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.6.3, Condition A, for an inoperable component cooling water (CCW) containment isolation valve (CIV). Upon identification, the valve was tested and returned to operable status within the TS allowable time. The finding was determined to be more than minor because, if left uncorrected, the failure to follow plant procedures and the mispositioning of plant equipment would have the potential to lead to a more significant safety concern. This finding was associated with the Barrier Integrity Cornerstone because a CIV forms part of the containment pressure boundary that provides reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accident or events. The inspectors evaluated the finding using IMC 0609, Appendix A, “The Significance Determination Process for Findings At-Power.” The inspectors used Exhibit 3 – “Barrier Integrity Screening Questions” for the reactor containment. The finding screened as very low safety significance (Green) because there was no actual open pathway in the physical integrity of reactor containment, containment isolation system, or heat removal components; and there was no impact on the hydrogen control function in containment. This finding had a cross-cutting aspect in the area of Human Performance, Work Practices Component, because personnel failed to use human error prevention techniques to ensure that work was performed safely. (H.4(a))

Inspection Report# : 2013002 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: G 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)*

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.

Miscellaneous

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