

Dresden 3

3Q/2012 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

Loss of Lift Station due to Human Performance Error

A finding of very low safety significance was self-revealed when a human performance error resulted in the loss of the Bus 41 which caused a trip of all circulating water hot canal lift pumps. The licensee performed a rapid down power on both Units 2 and 3 and secured the 3C circulating water pump. The lift pump Bus 41 was restored and the lift pumps were restarted. The licensee conducted all hands meetings to enforce why the actions taken prior to this event were incorrect. This was not a violation of NRC requirements.

The finding was determined to be more than minor because the finding could be reasonably viewed as a precursor to a significant event. Specifically, the loss of the lift pump bus resulted in securing a circulating water (CW) pump on Unit 3 and rapid load reductions on both units to prevent a loss of vacuum. The loss of vacuum could have resulted in a reactor scram. A rapid load reduction was performed on Unit 2 in preparation of securing a Unit 2 CW pump, but the lift station was restored before the securing of the Unit 2 CW pump became necessary. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, for the Initiating Events Cornerstone. This event was a transient initiator that could have resulted in a reactor scram. The inspectors answered 'No' to the question: "Does the finding contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available?" Therefore, the finding was screened as having very low safety significance, (Green). This finding has a cross-cutting aspect in the area of human performance, work practices, because licensee personnel did not use sufficient human error prevention techniques. Specifically, the placement of the lead in the wrong position at the completion of work was contrary to the work instructions in WO1507014-01. Stronger physical boundaries could have been established to prevent placing the lead in the wrong position. (H.4(a))
Inspection Report# : [2012003](#) (*pdf*)

Significance: N/A Mar 31, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

Unit 2 Control Rod Drive Flow Control Valve Failed Closed Due to Inadequate Work Order Instructions

A finding of very low safety significance was self-revealed for the failure to have adequate maintenance instructions to install the Unit 2 Control Rod Drive (CRD) Flow Control Valve A/B Selector Valve (2-302-6B) which resulted in the separation of the plastic instrument air tubing and the Unit 2 CRD flow control valves failing closed. The licensee made temporary repairs to 2-302-6B and wrote a work request to make final repairs. The licensee also wrote work requests to inspect the Unit 3 selector switch. The licensee also wrote a procedure change request to review DOA 0300-01, "Control Rod Drive System Failure," to clarify the decision to scram upon flow control valve failure. The licensee generated a corrective action to tie procurement engineering (PE) document 56060 to the new 2 302 6B model number. The licensee planned to prepare an equipment apparent cause evaluation (EACE). Additional corrective actions should result from the EACE.

The finding was determined to be more than minor because the finding was associated with the Initiating Events Cornerstone attribute of equipment performance of the Cornerstone Objectives and Attributes Tables of Manual Chapter 0612, Appendix B, dated January 1, 2010, and affected the cornerstone objective to limit the likelihood of

those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, for the Initiating Events Cornerstone. The inspectors determined that the finding did not result in both the likelihood of reactor trip and the likelihood that mitigation equipment or functions would not have been available. Therefore, the finding screened as having very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Resources, because the licensee did not have complete, accurate, and up-to-date design documentation. Specifically, the failure to attach PE 56060 to the most current part number necessary to replace 2-302-6B resulted in the failure to include instructions to install plastic piping connectors in the work order that was used to replace 2-302-6B.

Inspection Report# : [2012002](#) (*pdf*)

Significance: G Mar 27, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Flammable Hydrogen Gas Bottles Installed in the Reactor Building.

The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to check the adequacy of design for flammable hydrogen gas bottles installed in the reactor building and their impact on safety-related structures, systems, and components (SSCs). Specifically, the licensee failed to evaluate how a failure of the flammable hydrogen gas bottles and the resulting fire or explosion at the installed locations could impact nearby safety-related SSCs. The licensee entered this issue into their corrective action program to review the placement of the flammable hydrogen gas bottles. The inspectors determined that the finding was more than minor because the finding was associated with the Initiating Events cornerstone attribute of Protection against External Factors (Fire) and affected the cornerstone's objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown, as well as power operations. The finding was of very low safety significance due to the low fire initiating frequency and the availability of remaining mitigating systems. This finding had a cross-cutting aspect in the area of problem identification and resolution, operating experience because the licensee did not properly evaluate relevant operating experience identified during the preparation of a focused area self assessment. [P.2(a)]

Inspection Report# : [2012008](#) (*pdf*)

Significance: N/A Mar 09, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Provide Complete and Accurate Information to the NRC.

The inspectors identified a Severity Level IV, Non-Cited Violation of 10 CFR 50.9(a), "Completeness and Accuracy of Information," for the licensee's failure to provide complete and accurate information to the NRC during a 2011 Triennial Fire Protection Inspection. Specifically, between July 7 and October 17, 2011, the licensee failed to inform the NRC that bottles containing 100 percent hydrogen were located in the plant in response to inspectors' questions regarding flammable gas bottles. The licensee entered this issue into their corrective action program to document the incomplete response provided.

The inspectors determined that the performance deficiency was more than minor because it impacted the regulatory process. Specifically, had the NRC known during the 2011 Triennial Fire Protection Inspection that the hydrogen bottles contained 100 percent hydrogen the inspectors would likely have documented a finding associated with the hydrogen bottles. The issue was a Severity Level IV Non-Cited Violation because the inspectors documented a finding of very low safety significance associated with the flammable hydrogen bottles once they determined that bottles containing 100 percent hydrogen were located in the plant.

Inspection Report# : [2012008](#) (*pdf*)

Significance:  Oct 17, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Transient Combustible Program

The inspectors identified a finding of very low safety significance and associated NCV of Technical Specifications Section 5.4.1.c for the failure to control transient combustible materials in accordance with fire protection program requirements. Specifically, the licensee failed to control the amount and location of transient combustibles in areas containing safety-related components. In addition, the licensee failed to identify the presence of transient combustibles through fire watches conducted as required by the fire protection program. The licensee removed the transient combustibles and planned on reviewing training related to the transient combustibles.

The inspectors determined that this finding was more than minor because the transient combustible materials were stored near safety-related cables and components and formed credible fire scenarios. This finding was of very low safety significance because the materials would not result in ignition of a fire from existing sources of heat or electrical energy. This finding had a cross-cutting aspect in the area of Human Performance within the decision making component because the licensee did not properly communicate and reinforce expectations related to the fire protection program implementation concerning transient combustibles to personnel performing maintenance work and fire watches. [H.1(c)]

Inspection Report# : [2011008](#) (pdf)

Significance: SL-IV Oct 17, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Obtain NRC Approval for Change Adverse to Safe Shutdown

The inspectors identified a Severity Level IV, NCV of License Conditions 2.E and 3.G, for Units 2 and 3, for the failure to obtain NRC approval prior to making a change, which was adverse to safe shutdown. Specifically, the licensee made a change to Administrative Technical Requirements, which permitted a suppression system to be inoperable without compensatory measures, thereby degrading the ability to suppress a fire and challenging the ability to achieve and maintain safe shutdown in the event of a fire. The licensee entered the issue into their corrective action program and issued an operations' standing order to require fire watches, regardless of whether there was operable detection when a suppression system was out of service.

The inspectors determined that this finding was more than minor because the change permitted suppression systems to be inoperable without any compensatory action. This finding was of very low safety significance because the majority of issues identified by fire watches would involve combustible materials, which would not result in ignition of a fire from existing sources of heat or electrical energy. Violations of fire protection program changes adverse to safe shutdown are dispositioned using the traditional enforcement process instead of the significance determination process (SDP) because they are considered to be violations that potentially impede or impact the regulatory process. In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, dated April 25, 2011, this violation is categorized as Severity Level IV because the resulting changes were evaluated by the SDP as having very low safety significance.

The corresponding performance deficiency is tracked as item number 2011-008-06.

Inspection Report# : [2011008](#) (pdf)

Mitigating Systems

Significance: G Jun 30, 2012

Identified By: NRC

Item Type: FIN Finding

Inspectors Found Unit 3 Containment Cooling Service Water (CCSW) Vault Flood Door Open and Unattended

A finding of very low safety significance was identified by the inspectors for leaving the containment cooling service water (CCSW) vault door open and unattended. The licensee immediately closed the door, posted the door as difficult to close, and lubricated the door to make the door easier to close. The inspectors determined that leaving the CCSW vault door open and unattended was contrary to the Technical Requirements Manual 3.7.o.2 which required the CCSW vault and vault door to be operable. However, this did not involve a violation of NRC requirements.

The finding was determined to be more than minor because the finding was associated with the Mitigating System Cornerstone attribute of protection against external events and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, for the Mitigating System Cornerstone. The vault door was designed to mitigate the effect of internal flooding caused by a condenser boot failure. Question 5 asks, does the finding screen as potentially risk significant due to flooding. The inspectors answered yes, because with the door failed, two trains of a multi-train system were degraded (see Table 4b). The Region III Senior Risk Analyst (SRA) was contacted to perform a Phase 3 analysis. The SRAs performed a phase 3 SDP evaluation of the finding using the Risk-Informed Inspection Notebook for Dresden. The transient without the power conversion system (TPCS) initiator was used as a surrogate for the flooding initiator. This is conservative because the internal flood frequency is less than the frequency of TPCS. The SRAs solved the worksheet assuming the duration of the condition was less than 3 days and the CCSW system was unavailable. The result was a finding of very low safety significance (Green). The dominant sequence is a flood-induced transient with loss of the power conversion system and failure of containment heat removal, followed by random failures of the isolation condenser, shutdown cooling and late inventory injection. The inspectors did not identify a cross-cutting aspect associated with this finding.

Inspection Report# : [2012003](#) (*pdf*)

Significance: G Apr 20, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Remove Diesel Fire Pump Battery Terminal Corrosion

The inspectors identified a finding of very low safety significance (Green) and associated NCV of Technical Specifications for the licensee's failure to adequately implement the diesel fire pump (DFP) battery surveillance procedure. Specifically, the licensee failed to identify and remove corrosion on the DFP battery terminals, which was contrary to the surveillance procedure that implemented the fire protection program. A similar NCV was previously cited by the NRC on October 17, 2011, and documented in inspection report 05000237/2011008; 05000249/2011008, "Failure to Identify Diesel Fire Pump Battery Terminal Corrosion." The licensee entered the issue into their corrective action program and planned to clean the battery terminals. In addition, the licensee planned to replace the 2/3 DFP batteries in July 2012.

The inspectors determined that the finding was more than minor because, if left uncorrected, the presence of corrosion in conjunction with identified voltage issues for two battery cells could affect the reliability of the diesel fire pump. This finding was of very low safety significance because the DFP had started as part of a recent routine surveillance. This finding has a cross-cutting aspect in the area of PI&R because the licensee failed to identify the battery corrosion accurately and in a timely manner commensurate with their safety significance.

Inspection Report# : [2012007](#) (*pdf*)

Significance:  Mar 27, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Conduct Adequate Post Installation and Maintenance Inspections on Standby Liquid Control System Components.

The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion X, "Inspection," for the licensee's failure to perform adequate post-installation and post-maintenance inspections on standby liquid control (SBLC) heat tracing and pumps. Specifically, the licensee failed to verify that heat tracing on the SBLC system components was properly installed and later failed to verify that thermal insulation was properly replaced following maintenance on the SBLC pumps, which led to thermal degradation of the explosive material in the squib valves. The licensee entered this issue into their corrective action program and replaced the 3B squib valve.

The inspectors determined that the finding was 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 (i.e., core damage). The finding was of very low safety significance based on a Phase III Significance Determination Process Analysis. This finding had a cross-cutting aspect in the area of problem identification and resolution, operating experience because the licensee did not properly implement vendor operating experience.

Inspection Report# : [2012008](#) (*pdf*)

Significance:  Oct 17, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify Diesel Fire Pump Battery Terminal Corrosion

The inspectors identified a finding of very low safety significance (Green) and associated NCV of Technical Specifications for the licensee's failure to implement the diesel fire pump battery surveillance procedure. Specifically, the licensee failed to identify corrosion on the diesel fire pump battery terminals, which was contrary to the surveillance procedure that implemented the fire protection program. The licensee entered the issue into their corrective action program and surface cleaned the terminals.

The inspectors determined that the finding was more than minor because, if left uncorrected, the presence of corrosion in conjunction with identified voltage issues for two battery cells could affect the reliability of the diesel fire pump. This finding was of very low safety significance because the diesel fire pump had started as part of a recent routine surveillance. This finding has a cross-cutting aspect in the area of Human Performance because the maintenance personnel who performed the battery surveillance did not have sufficient training to recognize the presence of corrosion. [H.2(b)]

Inspection Report# : [2011008](#) (*pdf*)

Significance:  Oct 17, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure Operators Required for Safe Shutdown Were On-Site

The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix R, Section III.L., for the licensee's failure to ensure that operators required for safe shutdown were on-site at all times. Specifically, operators required for safe shutdown in the event of a fire traveled off-site for performing routine operator rounds. The licensee entered the issue into their corrective action program and planned to evaluate

their safe shutdown procedure actions and operations shift crew composition.

The inspectors determined that the finding was more than minor because the failure to ensure that operators required for safe shutdown were on-site at all times reduced the margin for time available to perform safe shutdown actions. The finding was of very low safety significance because it was feasible to perform the specified manual actions with available staff. This finding does not have a cross-cutting aspect because the finding is not representative of current performance.

Inspection Report# : [2011008](#) (*pdf*)

Significance: G Oct 17, 2011

Identified By: NRC

Item Type: FIN Finding

Failure to Obtain NRC Approval for Change Adverse to Safe Shutdown

The inspectors identified a finding of very low safety significance (Green) for the failure to obtain NRC approval prior to making a change, which was adverse to safe shutdown. Specifically, the licensee made a change to Administrative Technical Requirements, which permitted a suppression system to be inoperable without compensatory measures, thereby degrading the ability to suppress a fire and challenging the ability to achieve and maintain safe shutdown in the event of a fire. The licensee entered the issue into their corrective action program and issued an operations' standing order to require fire watches, regardless of whether there was operable detection when a suppression system was out of service.

The inspectors determined that this finding was more than minor because the change permitted suppression systems to be inoperable without any compensatory action. This finding was of very low safety significance because the majority of issues identified by fire watches would involve combustible materials, which would not result in ignition of a fire from existing sources of heat or electrical energy. The inspectors did not identify a cross-cutting aspect associated with the finding because the finding was not representative of current performance.

The related traditional enforcement item is tracked as item 2011-008-05.

Inspection Report# : [2011008](#) (*pdf*)

Barrier Integrity

Significance: N/A Mar 31, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to Document a 10 CFR Part 50.59 Evaluation for Changes Made to the Facility

The inspectors identified a Severity Level IV Non-Cited Violation (NCV) of 10 CFR Part 50.59, "Changes, Tests, and Experiments," having very low safety significance (Green) for the licensee's failure to perform an adequate safety evaluation review for changes made to the facility. As part of its corrective action, the licensee entered the issue into its corrective action program as IR 1302573 and performed Engineering Change Evaluations (EC) 38018 and EC 387073 which determined that the control room envelope had been historically operable. The licensee planned to install a completely different design of the chemical addition system that completely separated the sodium hypochlorite from the HEPD. Completion of the modification is planned for August 2012.

The finding was determined to be more than minor because the inspectors could not reasonably determine that the activity to install the chemical tanks in close proximity to one another without detection and alarm circuits to notify the control room would not have ultimately required NRC prior approval. The finding was evaluated under the SDP using NRC's Inspection Manual Chapter (IMC) 0609, Attachment 4, "Phase 1 – Initial Screening and

Characterization of Findings,” and the inspectors answered “Yes” to the question in Table 4a; “Does the finding represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere?” The SDP required a Phase 3 analysis to resolve this type of finding. However, after consultation with a Region 3 Senior Reactor Analyst it became apparent that no SDP methods or tools exist to determine the significance of the finding. Therefore, the finding was not suitable for evaluation using the SDP, so the risk significance was established in accordance with the qualitative criteria of Appendix M (dated December 22, 2006) of IMC 0609. Specifically, the qualitative decision-making attribute from Table 4.1 of Appendix M “Finding can be bounded using qualitative and/or quantitative information” was applicable to this finding. The licensee performed two quantitative engineering evaluations regarding this finding. The first (EC 387018) determined the minimum level of sodium hypochlorite stored in the tanks necessary that if it were to completely interact with the HEPD and completely release all of the contained chlorine would render the control room envelope inoperable. The second (EC 387073) determined that the tanks would not have been affected by wind, seismic, or missile impacts with a level of sodium hypochlorite equal to or greater than the level necessary to make the control room envelope inoperable identified in EC 387018. Therefore, based upon a qualitative measure of risk determined in accordance with Appendix M, NRC Management concluded that the issue was of very low safety significance (Green). This finding has no cross-cutting aspect because it does not represent current licensee performance.

Inspection Report# : [2012002](#) (*pdf*)

Significance: G Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Work instruction Leads to Failure of Secondary Containment Interlock

A finding of very low safety significance and associated non-cited violation of Technical Specification (TS) Section 5.4.1 was self-revealed because the work instructions associated with WO 1450006-01, “D2 SA PM 517 RB/TB INTLK DOOR (2 5850-52) ELECTRICAL CHECKS,” were inadequate. The use of inadequate work instructions resulted in the temporary failure of the secondary containment boundary between the Unit 2 Reactor Building and the Unit 2 Turbine Building. The licensee’s corrective actions included disciplining the maintenance planner and having each of the maintenance department heads prepare human performance improvement plans.

The finding was determined to be more than minor because the finding was associated with the Barrier Integrity Cornerstone attribute of configuration control and affected the cornerstone objective of maintaining the functionality of containment. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process,” Attachment 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” Table 4a for the Barrier Cornerstone because the finding affected the secondary containment. The inspectors answered all four questions ‘No’ which resulted in the finding screening as having very low safety significance (Green). This finding had a cross-cutting aspect in the area of Human Performance, Work Practices, because the licensee did not ensure that human error techniques such as self and peer checking was used during the creation of the work package. Licensee and management personnel stated that the work planner failed to adequately self-check and get a peer check on the completion of the preparation of the work package.

Inspection Report# : [2012002](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Ensure the Effectiveness of Packages as required by Department of Transportation (DOT)

Regulations

A finding of very low safety significance was self-revealed following the licensee's failure to appropriately package and transport radioactive material. This finding also resulted in two associated NCVs of 10 CFR 61.56(a)(3) and 10 CFR 71.5(a). The licensee's corrective actions included revising procedures and completing a detailed review through an apparent cause evaluation of the event. Additionally, the licensee suspended all radioactive material shipments using similar general packagings as a part of their corrective actions.

This finding was assessed using IMC 0609, Attachment D, "Public Radiation Safety Significance Determination Process," and determined to be of very low safety significance (Green). The inspectors determined that the finding did not involve the radioactive effluent release program or the radiological environmental monitoring program. The finding did involve the transportation of radioactive material. However, no external radiation levels or surface contamination levels were exceeded, the finding did not involve the certificate of compliance, and there was no failure to make notifications or provide emergency information. The finding did involve a breach of the package during transit and low-level burial ground non-conformance. However, the finding did not involve the loss of package contents or waste classification issues. The inspectors determined that the primary cause of this finding was related to a cross-cutting aspect in the area of Problem Identification and Resolution.

Inspection Report# : [2012002](#) (*pdf*)

Significance:  Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Ensure Packages Containing Solid Waste Contain as Little Free Standing and Noncorrosive Liquid as Reasonably Achievable

A finding of very low safety significance was self-revealed following the licensee's failure to appropriately package and transport radioactive material. This finding also resulted in two associated Non-Cited Violations (NCVs) of 10 CFR Part 61.56(a)(3) and Title 10 CFR Part 71.5(a). The licensee's corrective actions included revising procedures and completing a detailed review through an apparent cause evaluation of the event. Additionally, the licensee suspended all radioactive material shipments using similar general packagings as a part of their corrective actions.

This finding was assessed using IMC 0609, Attachment D, "Public Radiation Safety Significance Determination Process," and determined to be of very low safety significance (Green). The inspectors determined that the finding did not involve the radioactive effluent release program or the radiological environmental monitoring program. The finding did involve the transportation of radioactive material. However, no external radiation levels or surface contamination levels were exceeded, the finding did not involve the certificate of compliance, and there was no failure to make notifications or provide emergency information. The finding did involve a breach of the package during transit and low-level burial ground non-conformance. However, the finding did not involve the loss of package contents or waste classification issues.

Inspection Report# : [2012002](#) (*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

Last modified : November 30, 2012