Dresden 2
4Q/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 issued 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)*

Mitigating Systems

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Follow Cold Weather Initiating Procedure
The inspectors identified a finding of very low safety significance and associated NCV of Technical Specification

5.4.1.a for the failure to follow an abnormal operating procedure. Specifically, abnormal operating procedure (DOA) 5700-01, "Loss of Heating Boilers," Revision 12, required per step D.5 monitoring and logging temperatures per Checklists 1 and 2 at specific locations within and outside the plant when outside ambient temperature was below 40 degrees Fahrenheit. The licensee failed to enter DOA 5700-01 and perform the required Checklists even though the outside ambient temperatures dropped below 40 degrees 21 times between October 6 and November 6, 2012. The licensee's corrective actions include revising procedures DOA 5700-01 and DOS 0010-22 to remove inconsistencies and creating a method for ensuring plant temperature monitoring is performed in all required locations in accordance with proceduralized compensatory measures.

The finding was determined to be more than minor because the finding was similar to IMC 0612, Appendix E, Example 4.a. In this example the failure to write an engineering evaluation was not more than minor; however, the example states the failure to write engineering evaluations on similar issues was more than minor. The reason this violation is similar to IMC 0612, Appendix E, Example 4.a, is that the environmental conditions necessary to enter DOA 57001-01 existed 21 times between October 5, 2012 and November 6, 2012. Therefore this performance deficiency also impacted the Mitigating System Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding using IMC 0609, "Significance Determination Process," Appendix A, "The SDP for Findings At-Power," The inspectors reviewed IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012, and answered all four questions NO. Therefore the issue screened as having very low safety significance. This finding has a cross-cutting aspect in the area of problem identification and resolution, because the licensee did not take appropriate corrective actions. Specifically, the licensee was aware that the plant heating boilers were not available and that temperatures were dropping below freezing and did not enter the appropriate procedures to ensure the plant was adequately protected from the weather.
Inspection Report# : 2012005 *(pdf)*

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Post Protected Pathway Signs for a Red Risk Path System
A finding of very low safety significance and associated NCV of 10 CFR 50.65(a)(4), Maintenance Rule, was identified by the inspectors for the licensee's failure to implement all necessary prescribed risk management actions during a Unit 3 250 Vdc battery system maintenance and testing window. Specifically, the licensee failed to post protected equipment signs for the Unit 2 systems whose unavailability would have taken the unit into a Red risk condition. The licensee entered this issue into their corrective action program.

The inspectors determined that this performance deficiency is a finding and greater than minor because the licensee failed to perform a complete risk assessment including failing to review PARAGON, the licensee's configuration risk management software, prior to commencing the maintenance task and as a result did not implement prescribed risk management actions of posting signs and barricades to protect the Unit 2 250 Vdc battery equipment during the Unit 3 250 Vdc battery work window; which is similar to Example 7.f in IMC 0612, Appendix E. The inspectors performed a Phase 1 screening with assistance from the Regional Senior Reactor Analyst (SRA) using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," Flowchart 2, "Assessment of Risk Management Actions." The licensee provided core damage frequency (CDF) and large early release frequency (LERF) risk increase factors of 1.49 and 1.50, respectively, for the maintenance configuration, and a zero baseline CDF of 3.5E-6/yr. Given these values and assuming a maximum duration of 24 hours that the RMAs were not implemented, the SRA calculated an incremental core damage probability (ICDP) and incremental large early release probability (ICLERP) of 1.4E-8. Using flowchart 2, the finding was determined to be of very low safety significance (Green) because the ICDP was less than 1E-6 and ILERP was less than 1E-7. This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, Procedural Compliance because the licensee failed to conduct an adequate risk assessment prior to commencing maintenance activities and as such did not perform risk management actions required by procedure OP-AA-108-117, resulting in the missed postings for the protected pathway equipment.
Inspection Report# : 2012005 *(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: G 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)*

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: G 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: G 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-Citied 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

Significance: N/A Mar 31, 2012
Identified By: NRC
Item Type: FIN Finding
APRMs 4, 5, and 6, Not Within The TS limits Prescribed In TS 3.3.1.1 Table 3.3.3.3-1, 2.b and c
The inspectors identified a Severity Level IV NCV and associated finding of very low safety significance of 10 CFR 50.72(b)(3)(v)(D), "Immediate Notification Requirements for Operating Nuclear Power Reactors," for the failure to report an event to the NRC within 8 hours, where an event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident. The licensee had not prepared any corrective actions by the end of the inspection period.
The inspectors determined that a failure to report was an example of a violation that could impact the regulatory process and was subject to Traditional Enforcement. The inspectors determined that the underlying technical issue involved the inability to scram Unit 3 on flow biased neutron flux-high or fixed neutron flux-high functions within the TS limits prescribed in TS 3.3.1.1, Table 3.3.3.3-1, 2.b and c. The inspectors determined that the issue was more than minor, because if left uncorrected it would have had the potential to lead to a more significant safety concern. Using IMC 0609, Table 4a, "Characterization Worksheet for IE, MS, and BI Cornerstones," the inspectors determined that the finding had very low safety significance because they answered 'No' to all five questions contained in Column 2 of the Table 4a worksheet. The inspectors also determined that the contributing cause that provided the most insight into the performance deficiency affected the cross-cutting area of Problem Identification and Resolution, including properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality.
Inspection Report# : 2012002 *(pdf)*

Last modified : February 28, 2013