

## Dresden 3 2Q/2013 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:** G May 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Adequate Voltage Not Assured for Emergency Diesel Generator Air Start Solenoid Valve**

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to assure and verify adequate voltage was available at the air start solenoid associated with Unit 2 and Unit 2/3 emergency diesel generators. Specifically, the licensee failed to assure the minimum available voltage at the air start solenoid met the minimum rated voltage value for the solenoid. The licensee entered this finding into their Corrective Action Program and provided test results and calculations to reasonably conclude the currently installed air start solenoid valves would energize at the minimum calculated available voltage.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring capability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green) because the finding was a design deficiency that did not result in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : [2013007](#) (*pdf*)

**Significance:** G May 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Non-conservative Sizing Calculation for Target Rock Safety Relief Valve Air Accumulators**

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to correctly calculate the minimum air volume and pressure required to actuate the Target Rock Safety/Relief Valve air accumulators. Specifically, when calculating the minimum required air volume in the accumulator, the licensee failed to include the volume of air needed to stroke the air operator from closed to open. The licensee entered this finding into their Corrective Action Program and verified through a preliminary calculation there would be sufficient air in the accumulators for the valves to perform their safety function.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring capability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green) because the finding was a design deficiency that did not result in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : [2013007](#) (pdf)

**Significance:**  May 30, 2013

Identified By: NRC

Item Type: FIN Finding

**Failure to Ensure Functionality of High Pressure Coolant Injection Steam Supply Valve During an Anticipated Transient Without Scram**

The inspectors identified a finding of very low safety significance concerning motor-operated valve differential pressure calculation with respect to Dresden's anticipated transient without scram (ATWS) analysis. Specifically, the inspectors identified the design differential pressure used in calculation for the high pressure coolant injection (HPCI) steam supply valve did not address the significantly higher differential pressure that would be applied across the motor-operated valve during an ATWS event. The licensee entered this finding into their Corrective Action Program and verified through a preliminary calculation the HPCI steam supply valve would have sufficient thrust to open against the higher differential pressure to allow HPCI to function during ATWS event.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring capability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green) because the finding was a design deficiency that did not result in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : [2013007](#) (pdf)

**Significance:**  May 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Ensure Isolation Condenser Would Perform Its Safety-Related Function Under Design Conditions**

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure the isolation condenser would be capable of performing its safety function under design conditions. Specifically, the licensee was unable to justify the assumption the heat transfer rate would remain the same once the isolation condenser tubes began to become exposed. The licensee entered this finding into their Corrective Action Program and instituted a standing order to maintain the shellside water level and temperature in a more restrictive band. In addition, the licensee contracted a vendor to develop a calculation and additional bases for the design assumptions.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring capability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inspectors had reasonable doubt the system would have been able to perform its safety function during the initial 20 minutes of operation if called upon under design conditions. The finding screened as very low safety significance (Green) because the finding was a design deficiency that did not result in a loss of operability or functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : [2013007](#) (pdf)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: FIN Finding

**Failure to Include Adequate Acceptance Criteria in a Surveillance Test**

The inspectors identified a Finding having very low safety significance for the failure to include acceptance criteria in a surveillance test for equipment that is the sole source of make-up water to the isolation condenser and spent fuel pool for both units during a probable maximum flood (PMF) scenario postulated in the Updated Final Safety Analysis Report (UFSAR). As described in the Exelon Quality Assurance Manual, the licensee is committed to the requirements of ANSI/ANS 3.2-1988, which states that surveillance tests contain or reference acceptance criteria in appropriate design or other source documents.

The inspectors determined that the failure to include adequate acceptance criteria in a surveillance test was a performance deficiency warranting a significance evaluation. The inspectors determined that the finding was more than minor because if left uncorrected, it could lead to a more significant safety concern. Specifically, without any acceptance criteria in the surveillance test, the licensee cannot determine whether the flood pump was able to perform its function as described in the UFSAR and calculation DRE99-0035. The inspectors completed a Phase 1 significance determination of this finding and determined that the finding impacted the Mitigating Systems Cornerstone. The inspectors concluded that the diesel-driven make-up pump would be a mitigating system in the case of the probable maximum flood. The inspectors answered “No” to the question on Exhibit 2 - Mitigating Systems Screening Questions of Appendix A, “The Significance Determination Process for Findings At-Power,” of IMC 0609. As a result, the issue screened as of very low safety significance. Similar issues were identified previously by the inspectors involving inadequate surveillance test and operating procedures for the flood pump. Therefore, the inspectors determined that this finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program.

Inspection Report# : [2013002](#) (*pdf*)

**Significance:** **W** Mar 31, 2013

Identified By: NRC

Item Type: VIO Violation

**Deficiency In Abnormal Operating Procedures for Site Response to External Flooding Events**

Technical Specification Section 5.4.1 requires, in part, that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, Paragraph 6 addresses “Procedures for Combating Emergencies and Other Significant Events” and lists Item w “Acts of Nature (e.g., tornado, flood, dam failure, earthquakes)” as an activity under Paragraph 6 to be covered by written procedures.

Contrary to the above, from February 20, 1991, to November 21, 2012, the licensee failed to establish a written procedure to address the effect of an external flooding scenario on the plant. Specifically, prior to November 21, 2012, procedure DOA 0010-04, Floods, did not account for reactor vessel inventory make-up during an external flooding scenario up to and including the probable maximum flood event which could result in reactor vessel water level lowering below the top of active fuel.

The inspectors determined that this finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, Self and Independent Assessments, since it involves the failure to identify the lack of procedural steps to address a critical function during a comprehensive self assessment of the flooding strategy. (P.3(a))

Inspection Report# : [2013002](#) (*pdf*)

Inspection Report# : [2013009](#) (*pdf*)

**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 5700-01 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:**  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 ICLERP 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*)

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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**

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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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