Dresden 2
4Q/2007 Plant Inspection Findings

Initiating Events

Significance: G May 04, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Risk Assessment That Led to a Reactor Scram
A performance deficiency involving a Non-Cited Violation of 10 CFR 50.65(a)(4) was self-revealed after the Unit 2 reactor scram on May 4, 2007. The licensee failed to adequately assess and manage the risk associated with emergent work. The licensee's root cause report determined that the cause of the scram was a loss of feedwater due to closure of the condensate pre-filter isolation and bypass valves. The condensate pre-filter programmable logic controller central processing unit (CPU) had failed and work was in-progress to replace the CPU. The performance of this work caused the valve closure. Corrective actions included: 1) the CPU card was replaced with vendor support and the programmable logic controller (PLC) was restarted; 2) a standing order on risk management treatment of condensate pre-filter PLC hardware activities was initiated; 3) actions for design engineering to develop a design specification for the condensate pre-filter valve CPU software were assigned; and 4) actions to proceduralize the requirements associated with performing condensate pre-filter troubleshooting, maintenance activities and system restoration were initiated.

The finding was greater than minor because the maintenance that was performed resulted in an initiating event. The finding was of very low safety significance because all the equipment necessary to mitigate the transient worked as expected. The primary cause of this finding was related to the cross-cutting issue of human performance (work practices) because the human performance prevention techniques provided to the staff were not adequately followed. Personnel proceeded in the face of uncertainty and unexpected circumstances by not following a conservative decision making process (H.4.(a)).
Inspection Report# : 2007003 *(pdf)*

Mitigating Systems

Significance: SL-IV Dec 18, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform a 10 CFR50.59 evaluati0on for exceeding continuous raiting on the EDG.
The inspectors identified a Severity Level IV NCV associated with the failure to perform a safety evaluation in accordance with 10 CFR 50.59. Specifically, the licensee failed to perform a safety evaluation when non-conservatively changing the design basis loading for the emergency diesel generators (EDG) in the design calculation. This resulted in the expected loading during a design basis accident no longer being bounded by the EDG endurance testing requirements contained in the Technical Specifications (TS). Because the licensee did not also evaluate the effect on the existing endurance test loading requirements, the testing no longer adequately verified the capability of the EDG to power its predicted loading during a LOOP/LOCA. This adverse change increased the probability of a malfunction of equipment important to safety EDG during a LOOP/LOCA event.

Because the issue affected the NRC=s ability to perform its regulatory function, this finding was evaluated using the traditional enforcement process. The finding was determined to be more than minor because the inspectors could not reasonably determine that the change in EDG loading, which adversely affected equipment important to safety, would not have ultimately required NRC approval. The finding was determined to be of very low safety significance (Green) based on the results of the SDP Phase 1 screening worksheet. Specifically, the licensee was eventually able to demonstrate through an engineering evaluation, that the EDG loads would not exceed the bounding values contained in the endurance test criteria. The inspectors determined that there was no cross cutting aspect to this issue. (Section

1R21.b.1)

Inspection Report# : 2008007 *(pdf)*

Significance: G Dec 18, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to meet the EDG Power Factor Testing Requirement
The inspectors identified an NCV for the failure to meet the requirements contained in SR 3.8.1.15. Specifically, the testing that the licensee performed to meet SR 3.8.1.15 did not test to a power factor as close to the accident load power factor as possible. These testing methods did not demonstrate the capability of the EDG to support the emergency core cooling system loading and were non-conservative. The issue was entered into the licensee=s corrective action program.

The issue was more than minor because it was associated with the Mitigating System Cornerstone attribute of AEquipment Performance,@ and affected the cornerstone objective of ensuring the availability and reliability of the EDGs. Specifically, the licensee=s testing methods for SR 3.8.1.15 did not demonstrate the capability of the EDG to support ECCS loading and was non-conservative. This finding was of very low safety significance, because the inspectors answered ANo@ to all five questions under the Mitigating Systems Cornerstone column of the Phase 1 worksheet. Specifically, the licensee subsequently performed the required testing in SR 3.8.1.15 to the expected power factor, and the EDGs performed satisfactorily. The inspectors determined that there was no cross-cutting aspect to this issue. (Section 1R21.b.2)

Inspection Report# : 2008007 *(pdf)*

Significance: G Sep 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify and Correct Issues with the Operation and Testing of the Isolation Condenser Emergency Make-up Pump
The inspectors identified a performance deficiency involving a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," having very low safety significance for the failure to promptly identify and adequately correct issues with the operation and testing of the isolation condenser emergency make-up pump. The licensee's corrective actions for this issue included restoring the inventory of hoses and connectors to the appropriate number, sizes, and locations.

This finding was more than minor because it involved the equipment performance and procedure quality attributes of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The issue was of very low safety significance based on the low initiating event probability and, because of the slow onset of the flooding and the reduced decay heat in the reactor core at the time recovery actions would be necessary, the licensee would be able to reasonably perform recovery actions that would prevent core damage. The primary cause of this finding was related to the cross-cutting issue of Problem Identification and Resolution, Corrective Action Program, because the licensee failed to take appropriate corrective actions to address safety issues in a timely manner, commensurate with their safety significance and complexity (P.1.(d)).
Inspection Report# : 2007004 *(pdf)*

Significance: SL-IV Sep 30, 2007
Identified By: NRC
Item Type: VIO Violation
Inadequate Reactor Operators Shift Turnover
The inspectors identified a performance deficiency involving a Severity Level IV violation of Technical Specification 5.4.1, Operating Procedure OP-AA 112-101, and Operator Aid #159, when two licensed Nuclear Station Operators deliberately failed to follow station procedures on January 16, 2007, during the Unit 2 operations shift turnover. At the time of this event, Unit 2 was in an elevated risk profile (yellow) due to various plant components being taken out-of-service. This increased risk profile amplified the importance of knowing and understanding plant conditions. The

licensee's corrective actions included: 1) the Unit Supervisor had an alternate operator relieve the on-coming operator involved with improper turnover, 2) the licensee convened a fact finding investigation to determine the facts of the event, 3) the licensee increased the awareness of the operators at the facility to the importance of proper shift turnover, and 4) the licensee took disciplinary action toward the two individuals.

The NRC Office of Investigations conducted an investigation which concluded that the two Nuclear Station Operators deliberately failed to complete shift turnover and relief procedures. This issue was evaluated using the traditional enforcement process. The violation was categorized in accordance with the NRC Enforcement Policy. The failure to follow the shift turnover procedure, absent willfulness, had no actual safety consequences, and constitutes a minor violation. Considering willfulness on the part of the operators, a Severity Level IV violation is warranted. The violation is being cited because it was willful and was identified by the NRC.
Inspection Report# : 2007004 *(pdf)*

Significance: SL-IV Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Change of Systems Credited to Mitigate a High Pressure Coolant Injection Pump Room High Energy Line Break
The inspectors identified a finding having very low safety significance and an associated Severity Level IV Non-Cited Violation (NCV) of 10 CFR 50.59 for the licensee's failure to perform an adequate safety evaluation review for changes made to the facility per safety evaluation 2005-02-001. Specifically, the licensee failed to provide an adequate basis as to why changes that credited the isolation condenser for decay heat removal in lieu of the automatic depressurization system and low pressure coolant injection (LPCI)/containment cooling service water and credited the control rod drive system for control of reactor coolant inventory in lieu of LPCI during a postulated high pressure coolant injection (HPCI) room high energy line break (HELB) did not require a license amendment. The licensee entered this issue into its corrective action program.

Because the issue potentially impacted the NRC's ability to perform its regulatory function, this finding was evaluated using the traditional enforcement process. The finding was determined to be more than minor because the inspectors could not reasonably determine that the activity implemented per 10 CFR 50.59 safety evaluation 2005-02-001, which adversely affected systems important to safety, would not have ultimately required NRC approval. The inspectors completed a significance determination of the underlying technical issue using NRC's Inspection Manual Chapter (IMC) 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and answered "no" to all of the questions under the Mitigating Systems cornerstone. Based upon this Phase 1 screening, specifically this issue did not represent a loss of function, did not result in exceeding a Technical Specification (TS) allowed outage time, and did not affect external event mitigation, the inspectors concluded that the issue was of very low safety significance (Green). The inspectors determined there was not a cross-cutting aspect to this finding. In accordance with the Enforcement Policy, the violation was therefore classified as a Severity Level IV violation.
Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 12, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Restore Fire Brigade Equipment to a Ready Status in a Timely Manner after the Performance of a Fire Drill
The inspectors identified a Non-Cited Violation (NCV) of the Dresden Nuclear Power Station Renewed Facility Operating License having very low safety significance (Green) for the licensee's failure to restore fire brigade equipment to a ready status in a timely manner after the performance of a fire drill on June 12, 2007. Corrective actions by the licensee included the restoration of the fire brigade equipment to a ready status at 8:22 p.m. on June 13, 2007.

The inspectors determined that this finding was more than minor because the failure to restore the fire brigade equipment to a ready status, if left uncorrected, would become a more significant safety concern. The inspectors completed a Phase 1 significance determination of this issue using IMC 0609, "Significance Determination Process," Appendix A, Attachment 1, dated March 23, 2007. The inspectors determined that the finding affected the Mitigating Systems cornerstone and the fire protection defense-in-depth strategies. However, as discussed by IMC 0609, Appendix A, Attachment 1, issues related to performance of the fire brigade are not included in IMC 0609, Appendix

F, “Fire Protection Significance Determination Process,” and require management review. Therefore, the finding was reviewed by NRC management, and was determined to be a finding of very low safety significance (Green) because the condition existed for slightly more than 24 hours, the delay in getting additional self-contained breathing apparatus would be a maximum of about 10 minutes, and the majority of the safety significant equipment in the turbine building is protected by an automatic fire suppression system. The primary cause of this finding was related to the cross-cutting issue of human performance (work practices) because the licensee failed to ensure adequate supervisory and management oversight of work activities (restoration of the fire brigade equipment), such that nuclear safety was supported (H.4(c)).
Inspection Report# : 2007003 *(pdf)*

Significance: G May 18, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Acceptance Criteria in 125 VDC Station Battery Service Test Procedures
The inspectors identified a finding having very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control.” Specifically, the licensee failed to incorporate the 125 VDC system minimum required voltage value as the acceptance criteria for the minimum battery terminal voltage inservice test procedure DES-8300-28 “Unit 2 - 125 Volt Main Station Battery Service Test.” Following discovery, the licensee entered the issue into its corrective action program to revise the station batteries test procedures to include the minimum required voltage values.

This finding was more than minor in accordance with IMC 0612, Appendix B, “Issue Screening,” because, if the finding was left uncorrected it would become a more significant safety concern. Specifically, the failure to ensure that the battery terminal voltage during the battery discharge per the service test did not drop below the 125 system design input value could have affected the operability of safety-related equipment in the event of a design basis accident condition. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations.”
Inspection Report# : 2007006 *(pdf)*

Significance: G May 18, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Adequate Control Voltage for 4160 Breaker’s Closing Coil was not Assured
The inspectors identified a finding having very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control.” Specifically, the licensee failed to assure and verify that the minimum available control voltage at the 4160 circuit breakers was adequate for the closing coils to close the breakers, following a design basis accident and loss of offsite power condition. Following identification of this issue, the licensee obtained a letter from the vendor (General Electric Nuclear Energy) suggesting that it was reasonable to conclude that the closing coils will operate at Dresden’s minimum available voltage (58 volt) level based on ageing testing conducted in 1999 and 2007 testing of one of Dresden’s breakers.

This finding was more than minor in accordance with IMC 0612, Appendix B, “Issue Disposition Screening,” because the finding was associated with the Mitigated Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring capability and reliability of systems that respond to initiating events. Specifically, the failure to assure adequate control voltage was available to close the 4160 breakers would have affected the capability of emergency diesel generators and other safety-related equipment to respond to initiating events. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations
Inspection Report# : 2007006 *(pdf)*

Significance: G May 18, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Procedurally Control Regulatory Guide 1.97 Control Board Labeling
The inspectors identified a performance deficiency involving a Non-Cited Violation of Technical Specification (TS)

5.4.1 for the licensee’s failure to provide procedural controls for the unique identification of Regulatory Guide (RG) 1.97 post-accident instrumentation to aid the control room operator. Specifically, the licensee failed to adequately control the labeling on both unit’s control panels and the simulator, resulting in several improperly marked post-accident indicators.

The finding was greater than minor because, if left uncorrected, it could become a more significant safety concern. Inaccurately labeled control room indicators of RG 1.97 post-accident instrumentation could lead to confusion and hamper the response of operators if conflicting indications resulted due to accident conditions. The issue was of very low safety significance based on a Phase 1 screening in accordance with IMC 0609, Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations.”
Inspection Report# : 2007006 *(pdf)*

Significance: Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Perform 50.59 Evaluation of Non-Code Conforming Buried HPCI Piping (Section 1R02)
The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.59(d)(1) for the licensee’s failure to document an evaluation which provides the basis for the determination that a change, test, or experiment did not require a license amendment. Specifically, the licensee’s 10 CFR 50.59 screening failed to provide an evaluation as to why the installation of the high pressure coolant injection (HPCI) suction piping, which did not meet USAS B31.1 Code requirements, did not present more than a minimal increase in the likelihood of occurrence of a malfunction of a Structure, System, or Component (SSC) important to safety. The licensee entered this issue into the corrective action program and planned to do additional weld metal tensile and bend tests on a remnant piece of the non-conforming HPCI pipe. The licensee intended to perform this testing to demonstrate quality levels equivalent to that prescribed by the USAS B31.1 Code.

Because the issue potentially impacted the NRC’s ability to perform its regulatory function, this finding was evaluated using the traditional enforcement process. The finding was determined to be more than minor because the inspectors could not reasonably determine that this change, which adversely affected equipment important to safety, would not have ultimately required NRC approval. The licensee considered the nonconforming replacement pipe operable, based upon satisfactory hydrostatic tests of the installed pipe to demonstrate structural and leakage integrity at the time of installation. The inspectors completed a significance determination of the underlying technical issue using NRC’s inspection manual chapter (IMC) 0609, Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations,” dated November 22, 2005, and answered “no” to the Mitigating Systems screening questions in the Phase 1 Screening Worksheet. Based upon this Phase 1 screening, the inspectors concluded that the issue was of very low safety significance (Green). In accordance with the Enforcement Policy, the violation was therefore classified as a Severity Level IV Violation.
Inspection Report# : 2007002 *(pdf)*

Barrier Integrity

Significance: Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Valves Not Protected in the Division I Torus Pathway as Required by Procedure WC-AA-101
The inspectors identified a non-cited violation of 10 CFR 50.65 (a) (4), having very low safety significance associated with inadequate management of risk. On January 16, 2007, the licensee performed preventive maintenance which rendered Division II of the Unit 2 low pressure coolant injection and torus cooling systems inoperable and unavailable. The licensee’s Paragon model for on-line risk required the protection of the Division I torus cooling valves. The licensee protected valves 2-1501-20A and the 2-1501-38A (torus cooling/test valves), but did not protect valve 2-1501-21A which was in series and upstream of the valves that were protected. The licensee reviewed the issue and agreed with the inspector’s observation that the valve should have been protected. The licensee determined that the operators were insufficiently trained to ensure the Paragon Model requirements were properly implemented and

planned additional training on protecting equipment based on Paragon Model output as corrective action.

This finding was more than minor in accordance with Inspection Manual Chapter (IMC) 0612, “Power Reactor Inspection Reports,” Appendix B, “ Issue Screening,” issued on November 2, 2006. Section 3, question 5(I) asks, “Licensee failed to implement any prescribed significant compensatory measures or failed to effectively manage those measures?” The licensee’s Paragon model for on-line risk required the protection of the Division I torus cooling valves because the removal of equipment from service in this pathway would result in an elevated risk condition. The licensee did not protect all the valves in the Division I torus cooling valve pathway. This deficiency in the protected pathway program could affect the availability and capability of components and systems that respond to initiating events. The inspectors determined that this finding impacted the Barrier Integrity cornerstone and concluded that the issue had very low safety significance (Green) because no actual barrier failure occurred. The inspectors also concluded that this finding affected the cross-cutting area of human performance (Work Control) because the licensee did not appropriately plan the work activities to include the correct compensatory actions for the existing conditions (IMC 0305 aspect H.3.(a)).
Inspection Report# : 2007002 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

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