

Dresden 2

1Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Oct 06, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inappropriate Basis in 10 CFR 50.59 Evaluation for Temporary Modification

The inspectors identified a Severity Level IV Non-Cited Violation (NCV) of 10 CFR 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 per Temporary Modification EC TCCP 354622. Specifically, the licensee failed to appropriately evaluate the installation of a temporary jumper at the Electro-Hydraulic Control (EHC) Card 2-5640-A37 to bypass the function of the “A” Main Steam Pressure Regulator (MSPR). The licensee’s 10 CFR 50.59 safety evaluation 2005-01-001 failed to provide a basis as to why the activity which bypassed one of the two MSPRs did not present more than minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety previously evaluated in the Updated Final Safety Analysis Report (UFSAR).

Inspection Report# : [2006012](#) (*pdf*)

Significance:  Sep 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Include Adequate Instructions for Fitting Reassembly in Main Steam Isolation Valve Work Package

A performance deficiency involving a non-cited violation of Technical Specification (TS) 5.4.1 was self revealed after the Unit 2 reactor scram on July 4, 2006. The licensee’s root cause report determined that the cause of scram was that the Unit 2 inboard main steam isolation valve, (MSIV) 2-203-1A, drifted closed. The pilot air sensing line tubing to the 2-203-1A valve separated from the compression fitting holding it in place. The tubing slipped out of the compression fitting because the fitting was either improperly installed or the fitting may have been too big for the tubing installed.

The finding was greater than minor because it was a precursor to a significant event. The finding was of very low safety significance because all the equipment necessary to mitigate the transient worked as expected. Corrective actions included, 1) the fitting was reinstalled with the correct parts and was leak checked; 2) seven other fittings on the inboard and outboard Unit 2 MSIVs were leak checked with satisfactory results; 3) the fittings on both units will be removed and checked for proper parts during the next refueling outages; 4) MSIV model work orders will be updated to include “Tube Fitting Repair and Replacement Instruction,” and include the instructions in work orders where compression fittings are identified.

Inspection Report# : [2006010](#) (*pdf*)

Mitigating Systems

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*)

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Significance: Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Comply with TS 5.5.13 for 125 Vdc Battery Terminal Connection Corrosion and Resistance Measurements

On October 16, 2006, a performance deficiency involving a non-cited violation of TS Section 5.5.13 having very low safety significance was identified by the inspectors for failure to comply with the TS requirement when visible corrosion on the Unit 2 125 Vdc safety-related battery inter-cell and terminal connections was identified. Specifically, the licensee failed to identify, document or take battery connections resistance measurements on battery cell terminations containing visible corrosion. Upon discovery, the licensee's corrective actions included: cleaning identified corroded inter-cells, reinforcing the expectation that sufficient documentation of corrective actions was to be documented, and taking and recording connection resistance measurements.

The finding was considered more than minor because the failure to ensure that the Unit 2 125 Vdc safety-related battery was being maintained in accordance with applicable procedures to comply with the TS requirements, could result in unacceptable battery terminal connection resistance and decreased battery capacity, rendering the DC system incapable of performing its intended safety function. The finding was determined to be of very low safety significance using the SDP Phase 1 screening worksheet. This finding has a cross-cutting aspect in the area of human performance (work practices) because the licensee did not effectively communicate expectations regarding procedural compliance and personnel did not follow procedures.

Inspection Report# : [2006011](#) (*pdf*)

G

Significance: Oct 06, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

EQ Binder Failed to Include Conductor Temperature Rise

The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control" having very low safety significance (Green) for the licensee's failure to evaluate and include the conductor temperature rise for the 5KV cables for the CS and LPCI pump motors in the Equipment Qualification Binder EQ-04D. The EQ Binder used the cable design limit of 194 degrees F in calculating the qualified life of the 5KV cables instead of the sum of the conductor temperature rise and the ambient temperature, during and post accident, which together exceeded the cable design limit.

Inspection Report# : [2006012](#) (*pdf*)

G

Significance: Sep 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Mispositioning of Control Rod During Single Notch Timing

On July 30, 2006, a performance deficiency involving a non-cited violation of TS 5.4.1 was self revealed when two nuclear station operators (NSOs) failed to exercise appropriate three-way communication and second verification, resulting in the movement of control rod C-9 to an incorrect position during the performance of Dresden Operating Surveillance (DOS) 0300-04, "Control Rod Drive Timing," Revision 39.

The finding was greater than minor because it impacted the human performance attribute of the Reactor Safety Mitigating Systems Cornerstone objective to ensure reliability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because the mispositioned rod did not significantly increase reactivity to a point where power limits were challenged. Corrective actions for this event included: 1) all licensed operators were to take part in a dynamic learning activity in the simulator involving control rod operations and communications; 2) the shift manager was required to be in the control room during all non-emergency control rod moves; 3) the unit supervisor was required to provide direct overview in the "horseshoe" area of the control room during all non-emergency control rod movements; 4) each shift manager was required to perform a paired observation with the crew unit supervisors specifically focused on communications and verification techniques. 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 NSOs, such as three-way communication and a second verifier were not effective in preventing this error.

Inspection Report# : [2006010](#) (*pdf*)

G

Significance: Sep 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Unit 2 Isolation Condenser Declared Inoperable Due to Inadequate Backfilling of Instrument Sensing Lines

A self-revealing finding involving a non-cited violation of Technical Specification 5.4.1 was identified on February 1, 2006, due to the licensee's failure to include essential information in DOP 1300-11, "Unit 2 Isolation Condenser Fill and Vent," Revision 12, regarding backfilling of the sensing lines after completion of the filling of the isolation condenser piping. This procedural deficiency resulted in the isolation of the flow paths of the isolation condenser for an extended period of time (approximately 22 hours) and online risk changed from Green to Yellow.

This finding was considered more than minor because it affected the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance because even though the flow paths of the isolation condenser were isolated and online risk changed from Green to Yellow, the flow paths could have been restored manually by operator actions. Corrective actions by the licensee included revising procedures DOP 1300-10, "Unit 3 Isolation Condenser Fill and Vent," Revision 19, and DOP 1300-11 to include DPIS 2(3)-1349A and B sensing line backfilling following system piping filling and venting. The primary cause of this finding was related to the cross-cutting issue of human performance (resources) because the licensee did not provide complete, accurate and up-to-date procedures to plant personnel.

Inspection Report# : [2006010](#) (*pdf*)

G

Significance: Jun 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify an Inoperable 3-hour Fire Barrier Wall in the Unit 2 EDG Day Tank Room

On May 1, 2006, the inspectors identified a non-cited violation of Unit 2 Operating License Condition E, Fire Protection Program, for failure to identify and correct a degraded fire barrier wall. The inspectors identified a wall gap in the Unit 2 emergency diesel generator day tank room. The gap was in a 3-hour fire rated wall, separating the Unit 2 diesel fuel oil day tank room from the Unit 2 reactor feed pump room. As corrective action, the licensee established a firewatch, entered the issue into the corrective action program, and repaired the gap in the wall.

The finding was greater than minor because it affected the protection against external factors attribute of the Mitigating Systems cornerstone objective. However, the finding was of very low safety significance due to no credible fire scenarios developing that would have affected the safe shutdown of Unit 2, and due to the relatively negligible combustible loading in the area of the gap. The inspectors also concluded that this finding affected the cross-cutting issue of human performance (personnel).

Inspection Report# : [2006007](#) (*pdf*)

G**Significance:** Jun 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Unit 2 350 psig Reactor Low Pressure Emergency Core Cooling System Permissive Switch Out-of-tolerance During Surveillance Testing

On May 15, 2006, a finding involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, was identified by the inspectors. The licensee failed to identify a condition adverse to quality where the Unit 2 350 psig reactor low pressure emergency core cooling system (ECCS) permissive pressure switch was found outside the Technical Specification (TS) allowable tolerance range repeatedly. The licensee's actions lacked prioritization in determining the cause of the out-of-tolerance of the 2-0263-52B permissive pressure switch. Also, the licensee failed to assign timely corrective actions to evaluate the cause of the switch's repeated TS surveillance test failures.

The finding was greater than minor because it impacted the equipment performance attribute of the Mitigating System cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events. As corrective action, the licensee created action items to address the repeat failures of the 2-0263-52B switch to meet its TS requirements. The licensee wrote Issue Report (IR) 495327, "Trending IR for 2-0263-52B exceeds TS 6 of 9 Surveillances," to identify why this adverse trend was not entered into the corrective action system. As immediate corrective action, the licensee reduced the surveillance frequency to adequately monitor the switch's performance. The licensee also required all system managers and first line supervisors to review the station procedure for the instrument performance trending program, and implemented a manufacturer's recommendation to use smaller step changes in applied pressure to improve set point accuracy. The finding was of very low safety significance because the other permissive switch 2-0263-52A was always operable. Therefore, the switch's safety function and ability to permit reactor low pressure ECCS injection were maintained. The primary cause of this finding was related to the cross-cutting issue of problem identification and resolution (corrective action).

Inspection Report# : [2006007](#) (*pdf*)Inspection Report# : [2006010](#) (*pdf*)**G****Significance:** Jun 29, 2006

Identified By: Self-Revealing

Item Type: FIN Finding

Unit 2 High Pressure Coolant Injection (HPCI) System Declared Inoperable

A finding was self-revealed when an instrument maintenance technician shorted a power lead while performing modification work that resulted in the Unit 2 high pressure coolant injection system becoming inoperable for 2 hours and 14 minutes on April 6, 2006. No violation of NRC requirements was identified.

This finding was more than minor because it involved the attribute of equipment performance of the Mitigating Systems objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because the high pressure coolant injection system was inoperable for a short time period and could have been manually controlled in the event of an accident. The individual was counseled for a lack of attention to detail and the entire instrument maintenance department was made aware of this error. This finding affected the cross-cutting issue of human performance (personnel).

Inspection Report# : [2006007](#) (*pdf*)**G****Significance:** Jun 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Standby Liquid Control Valves Installed In The Plant Different than those Assumed in a Design Calculation

On May 5, 2006, the inspectors identified a finding involving a non-cited violation of 10 CFR 50.62 associated with a licensee-identified material condition, and having very low safety significance. The licensee identified that the inputs to a design analysis (DRE01-0066, "Dresden Unit 2 & 3 Standby Liquid Control System Discharge Piping Pressure Drop," Revision 1) were non-conservative. Some of the valves installed in the plant were not the same type of valves assumed to be installed in the design analysis. This ultimately resulted in a change in a design calculation that demonstrated that standby liquid control system relief valves could lift upon system initiation during an anticipated transient without scram (ATWS) event.

The finding was more than minor because it affected the design control attribute of the Mitigating Systems objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because the standby liquid control system could be recovered during an ATWS event. Cycling of the relief valves would not prevent most of the borated solution from being injected into the reactor pressure vessel, and the licensee was able to demonstrate that the reactor remained within the acceptance criteria of their original ATWS analysis even if no boron solution was injected into the reactor pressure vessel while the relief valves lifted. The licensee planned to use a more enriched form of boron so that one pump could be used to meet the 10 CFR 50.62 requirements. This enriched boron would replace the current boron in the storage tanks in the next refueling outages. This issue was a non-cited violation of 10 CFR 50.62.

Inspection Report# : [2006007](#) (*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*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Licensee's Failure to Develop a Pre-fire Plan for Fire Zone 8.2.6.A, Elevation 534'

A performance deficiency involving a non-cited violation of the Dresden Nuclear Power Station Renewed Facility Operating License was identified by the inspectors due to the licensee's failure to develop a pre-fire plan. Specifically, on November 17, 2006, the inspectors identified that the licensee failed to develop a pre-fire plan for Fire Zone 8.2.6.A, elevation 534'. The licensee has since developed a pre-fire plan for the Fire Zone 8.2.6.A, Elevation 534'.

This finding was considered more than minor because it involved the Barrier Integrity attribute of procedural quality for the control room ventilation system because the failure to develop a pre-fire plan for Fire Zone 8.2.6.A could have adversely impacted the fire brigade's ability to fight a fire. The finding was related to the performance of the fire brigade and was not suitable for SDP evaluation. Therefore, the finding was reviewed by NRC management and determined to be of very low

safety significance because no safe shutdown equipment was located in this fire zone.

Inspection Report# : [2006011](#) (*pdf*)

Significance:  Jun 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Post Protective Pathway Signs During Unavailability of Torus to Reactor Building Vacuum Breaker

On May 15, 2006, the inspectors identified a non-cited violation 10 CFR 50.65 (a) (4), having very low safety significance associated with inadequate management of risk. While working on the Unit 2 1601-20B reactor building to torus vacuum breaker relief valve, the Unit 2 risk status was designated as “yellow” and would have gone to “red” if the 2-1601-20A valve was also taken out-of-service. The 2-1601-20A vacuum relief valve was not clearly indicated as a protected pathway as required by station work control procedures and station personnel were not notified of the 2-1601-20B “yellow” risk status through any of the normal administrative methods.

This finding was more than minor because this issue, if left uncorrected, could have become a more significant safety concern. Had the availability of the 2-1601-20A valve been affected, plant risk would have been elevated to a “red” condition. The plant risk model did not show that this equipment was required to have a protected pathway on the redundant equipment. In addition, during the extent of condition review, the licensee identified that six additional pieces of plant equipment should have indicated the requirement for protected pathways, but did not. The licensee corrected both these conditions. The inspectors evaluated this finding using IMC 0609, “Significance Determination Process,” and concluded the issue was of very low safety significance (Green) because no actual degradation of the barriers occurred. This finding affected the cross-cutting issue of human performance (resources).

Inspection Report# : [2006007](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Sep 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Satisfy Technical Specification LHRA Access Requirements During Entry Into a Steam Sensitive Area at Power

A self-revealed finding of very low safety significance, and an associated violation of NRC requirements were identified for the failure to satisfy Technical Specification requirements for access into a high radiation area with dose rates in accessible areas greater than 1000 mrem/hour. As a result, a worker was allowed to enter a steam sensitive area at power that was controlled as a locked high radiation area (LHRA), without adequate recognition of the area radiological conditions and without positive radiological control over the activities within the area. The electronic dosimetry (ED) worn by the worker alarmed when significantly higher than expected dose rates were encountered, resulting in some unnecessary dose to that worker.

The issue was more than minor, because it was associated with the Program/Process attribute of the Occupational Radiation Safety Cornerstone, and affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. The issue represents a finding of very low safety significance because it did not involve ALARA Planning or work controls, there was no overexposure, nor did a substantial potential for an overexposure exist given the radiological conditions in the area and the worker’s response to the ED alarm. Also, the licensee’s ability to assess worker dose was not compromised. A Non-Cited Violation of TS 5.7.1 was identified for the failure to comply with the requirements for access into a high radiation area with dose rates accessible to personnel greater than 1000 mrem/hour. Corrective actions taken by the licensee included modification to the survey maps for steam sensitive areas, tagging of certain LHRA keys to remind radiation protection staff to coordinate entries into these areas with operations staff, and plans to reevaluate the radiation protection department practices for entry into steam sensitive areas, and in general for

entry into high radiation areas with the potential for significant dose rate gradients.
Inspection Report# : [2006010](#) (*pdf*)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

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