

Quad Cities 1

3Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

4160 VOLT RELAYING AND METERING SINGLE FAILURE VULNERABILITY

A finding of very low safety significance was identified when the licensee discovered that a spurious open circuit on the relaying and metering transformers for the unit auxiliary or the reserve auxiliary transformer could result in a loss of power to the residual heat removal service water system. This finding was determined to be a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III.

This finding was more than minor because if left uncorrected, the open circuit vulnerability would leave the station susceptible to a loss of the residual heat removal service water system following a loss of offsite power event. This finding was determined to be of very low safety significance because the frequency of the circuit failure was less than 1.0E-6 and because the probability of experiencing a control room fire concurrent with the postulated circuit failure was also significantly low. Corrective actions for this issue included installing a temporary modification to eliminate the vulnerability, reviewing other electrical circuitry for similar vulnerabilities, and designing and installing a future permanent modification.

Inspection Report# : [2005005\(pdf\)](#)

Significance:  Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTIONS FOR THE TWO PREVIOUS BUS OVERLOAD EVENTS

A self-revealing finding of very low safety significance and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, were identified on March 27, 2005, due to the failure to implement effective corrective actions following the overloading of an electrical bus. This resulted in an overload of an electrical bus during the Unit 1 refueling outage and the loss the Unit 1 125 V battery chargers, the control room emergency ventilation system, and one half of the fuel pool cooling system.

This finding was more than minor because the ineffective corrective actions resulted in the procedures used to monitor loading on cross connected electrical buses being inadequate. This finding was of very low safety significance since the loads supplied by the Unit 1 battery chargers could be supplied from an alternate source, the fuel pool cooling loss did not result in a significant increase in temperatures, the Unit 1 reactor vessel water level was greater than 23 feet above the vessel flange, and the likelihood of a fire or toxic gas release occurring coincident with the loss of the electrical bus was very low. Corrective actions for this issue included reviewing all procedures which allowed buses to be cross connected to ensure that specific information regarding the prevention of bus overloading was included and establishing positive controls for cross connected equipment within the applicable procedures.

Inspection Report# : [2005003\(pdf\)](#)

Mitigating Systems

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW THE CODE CASE N-513 CONTROL MEASURES FOR INSPECTIONS AND TESTS

A finding of very low safety significance was identified for the failure to adequately implement code case instructions for determining the operability and extent of condition when a pipe flaw was found on the residual heat removal service water system. The failure was determined to be a Violation of 10 CFR Part 50, Appendix B, Criterion III.

The finding was more than minor because, if left uncorrected, the extent of the piping flaw geometry would not be fully understood due to a lack of inspection that could result in inappropriately concluding that equipment important to safety was operable. The finding was considered to be of very low safety significance because the licensee was able to verify that the minimum pipe wall thickness of suspect examined areas of the residual heat removal service water piping welds met the functionality requirements for system operability. Corrective actions for this issue include the extent of condition ultrasonic tests that have been completed and the weld repair of the 1D residual heat removal service water pump flaw.

Inspection Report# : [2005005\(pdf\)](#)

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Significance: Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

LACK OF PROCEDURE INSTRUCTION IN PROCEDURE QCEMS 0250-11 TO EVALUATE AERO SHELL 7 GREASE FOR LUBRICANT AND THICKENER SEPARATION

A finding of very low safety significance was identified for the failure to provide adequate instruction for the application of grease as a lubricant to 480 Volt motor control center auxiliary contacts during maintenance. The failure was determined to be a Violation of 10 CFR Part 50, Appendix B, Criterion V.

The finding was more than minor because, if left uncorrected, degraded grease could be applied during maintenance activities to impact the operability, availability, reliability or safety function of a mitigating system. The finding was considered to be of very low safety significance because the finding did not result in an actual loss of a safety system function. Corrective actions for this issue included the removal of the old Aero Shell 7 grease can from the electrical maintenance shop to prevent its use and the generation of work orders to clean and re-lubricate the CR105X auxiliary contacts where white residue has been identified at various motor control center cubicles during the January through February 2005 inspection.

Inspection Report# : [2005005\(pdf\)](#)

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Significance: Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

MISAPPLICATION OF AERO SHELL 7 GREASE

A finding of very low safety significance was identified for failing to follow a maintenance procedure that resulted in the failure of residual heat removal valve 1-1001-26B to operate during testing. The failure was determined to be a violation of 10 CFR Part 50, Appendix B, Criterion V.

The finding was more than minor because if left uncorrected, this inappropriate maintenance practice would result in hardened grease in other auxiliary contact assemblies impacting the operability, availability, reliability, or safety function of mitigating systems. The finding was considered to be of very low safety significance because the finding did not result in an actual loss of a safety system function. Corrective actions for this issue include the auxiliary contact assemblies in the motor control center cubicle being replaced and properly lubricated with Dow Corning 44 grease.

Inspection Report# : [2005005\(pdf\)](#)

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Significance: Jun 30, 2005

Identified By: NRC

Item Type: FIN Finding

FAILURE TO ADEQUATELY ADDRESS THE CONTINUED OPERABILITY OF SEVERAL BRASS FITTINGS AS PART OF OPERABILITY EVALUATION 328851

The inspectors identified a finding of very low safety significance in May 2005 while reviewing an evaluation used to justify the continued operability of commercial grade brass fittings installed on safety-related equipment. The primary cause of this finding was related to the cross-cutting area of Human Performance in that, engineering personnel had information regarding the fact that 5 out of 14 fitting batches were unable to be tested. However, information which justified the continued operability of the untested fittings was not included in the associated operability evaluation.

This finding was more than minor because if left uncorrected, the station could reach inappropriate conclusions regarding the continued operability of equipment important to safety. The finding was of very low safety significance because none of the safety-related equipment was determined to be inoperable. No violations of NRC requirements occurred since operability evaluations were not required by NRC regulations.

Inspection Report# : [2005003\(pdf\)](#)

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Significance: Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

DRYWELL CLOSEOUT ACTIVITIES

The inspectors identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, due to the failure to effectively implement the requirements contained in QCOS 1600-32, "Drywell/Torus Closeout," in May and June 2005. The primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution in that, the inspectors had informed the licensee of previous deficiencies in the station's processes used to ensure that foreign material was not left in the drywell following the completion of a refueling or maintenance outage. However, it appeared that little action had been taken to address the inspectors' concerns.

This finding was more than minor because if left uncorrected, the continued accumulation of foreign material in the drywell could lead to a

condition in which material could block the emergency core cooling suction strainers, ventilation, spherical junction drain lines, or motor vents during normal operation or accident conditions. This finding was of very low safety significance because the material left in the drywell did not result in an actual loss of safety function. Corrective actions for this issue included the removal of material from the drywell and assigning outage work control personnel activities to ensure that future drywell and torus closeout activities effectively removed all foreign material prior to commencing startup activities.

Inspection Report# : [2005003\(pdf\)](#)

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Significance: Apr 08, 2005

Identified By: NRC

Item Type: FIN Finding

FAILURE TO INITIATE OPERABILITY DETERMINATIONS OR EVALUATIONS WHEN REQUIRED

The inspectors identified a finding of very low safety significance due to the licensee's failure to perform operability determinations/evaluations for non-safety related structures, systems, or components discussed in the Updated Final Safety Analysis Report which were discovered to be degraded.

This finding was more than minor because if left uncorrected, the failure to properly evaluate the continued operability of degraded equipment could result in the licensee inappropriately relying on structures, systems, or components that were unable to perform their safety function during an initiating event. The finding also impacted the cross-cutting area of problem identification and resolution because the licensee has had multiple examples of failures to initiate operability determinations or evaluations which had not been previously identified. No violation of NRC requirements occurred since the completion of operability determinations/evaluations was not required by NRC regulations.

Inspection Report# : [2005002\(pdf\)](#)

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Significance: Apr 08, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

REVIEW OF ON-LINE RISK ASSESSMENT OF COMPENSATORY ACTIONS TAKEN IN RESPONSE TO A PINHOLE LEAK

The inspectors identified a NCV of 10 CFR 50.65(a)(4). Specifically, the NRC identified that the licensee non-conservatively evaluated the on-line risk associated with actions taken in response to an emergent residual heat removal service water leak on January 14, 2003.

The inspectors considered this issue of more than minor significance because, had an adequate risk evaluation occurred, the on-line risk would have changed from Green to Yellow. The inspectors determined that the issue was of very low safety significance, or Green, because although one train of residual heat removal service water was unavailable, the actual safety function of the system could have been performed by the remaining train and the train was not inoperable for greater than the Technical Specification allowed outage time. Corrective actions for this issue included providing training to operations personnel which focused on crediting manual operator actions in place of automatic actions as part of a risk assessment.

Inspection Report# : [2005002\(pdf\)](#)

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Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW LOCKING AND TAGGING PROCEDURE WHILE DEVELOPING SYSTEM RETURN TO SERVICE INSTRUCTIONS CONTRIBUTES TO LEAK CREATION DURING POST MAINTENANCE TESTING

A self-revealing finding of very low safety significance was identified during post maintenance testing of the 1A residual heat removal service water system on October 7. Several human performance deficiencies resulted in operations personnel starting the 1A residual heat removal service water pump without a discharge flow path. The deficiencies included: a failure to follow the licensee's locking and tagging procedure when developing system return to service instructions; the use of unverified assumptions when developing return to service instructions; weaknesses in briefings; and deficient control board panel monitoring. A Non-Cited Violation of Technical Specification 5.4.1 was also identified.

The inspectors determined that this issue was more than minor because the failure to follow procedure, the inadequate briefings, and the deficient panel monitoring resulted in creating a sizeable leak in the residual heat removal service water system and operating a system in a condition which had the potential to lead to pump damage. This issue was of very low safety significance because the leak did not result in a loss of safety function for the residual heat removal service water system. Corrective actions for this issue included briefing operations personnel on the issue, improving human performance in the operations department, and repairing the leak.

Inspection Report# : [2004010\(pdf\)](#)

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Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

TECHNICAL SPECIFICATION ALLOWABLE VALUE EXCEEDED FOR LOW PRESSURE COOLANT INJECTION LOOP SELECT REACTOR LOW PRESSURE SWITCHES

A finding of very low safety significance was self-revealed when the setpoints for two of the Unit 1 low pressure coolant injection loop select low pressure switches were found above Technical Specification value on July 30, 2004. The inspectors determined that an unapproved modification had resulted in the removal of one of two internal micro-switches which caused the pressure switches to drift more than expected. The implementation of an unapproved modification was determined to be a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control."

This issue was determined to be more than minor because if left uncorrected, the unapproved modification could result in the switch setpoints drifting above both the Technical Specification limits and the allowable value. However, this finding was determined to be of very low safety significance because it did not result in an actual loss of safety function for the low pressure coolant injection system. The licensee's short term actions included increasing the pressure switch testing frequency and performing an extent of condition review to determine whether other switches had been modified. In the long term, the licensee planned to replace the pressure switches, or return the installed pressure switches to their original design, during the next refueling outage.

Inspection Report# : [2004010\(pdf\)](#)

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Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

HISTORICAL FAILURE OF MAIN STEAM SAFETY VALVES TO MEET TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENTS

A finding of very low safety significance and a Non-Cited Violation of Technical Specification 3.4.3 were identified by the inspectors in November 2004 due to the licensee's repeated inability to demonstrate that the main steam safety valves would actuate within plus or minus one percent of the nameplate value when required.

This issue was determined to be more than minor because it led to continued degradation of the main steam safety valves and put the licensee at risk for exceeding their vessel overpressure limits following an accident or an anticipated transient without scram. This finding was of very low safety significance because an adequate number of safety valves and relief valves were available to prevent an overpressure condition from occurring. Corrective actions for this issue included installing new main steam safety valves, submitting a license amendment to change the main steam safety valve operating tolerances, and revising a previously issued Licensee Event Report to report the previous failures.

Inspection Report# : [2004010\(pdf\)](#)

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Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CAPABILITY TO ISOLATE THE SAFETY RELATED TORUS FROM THE NON-SEISMIC PORTIONS OF THE REACTOR CORE ISOLATION COOLING SYSTEM

The inspectors identified a finding and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in May 2004 when they discovered that the design of the reactor core isolation cooling system did not provide adequate capability to isolate the safety-related torus from the non-seismic reactor core isolation cooling system under all conditions. As a result, torus water could potentially drain into the reactor building following a seismic event and a failure of the reactor core isolation cooling piping. The loss of torus inventory could potentially affect the safety-related water supply for the emergency core cooling systems.

This finding was more than minor since it could have affected the mitigating cornerstone objective of ensuring the availability of systems required to respond to initiating events. This finding was of low safety significance because a subsequent evaluation demonstrated that the reactor core isolation cooling piping would not have failed during a seismic event. The licensee initiated a procedure change to remotely bypass the valve control logic such that the reactor core isolation cooling system remained operable and the operators could close the valve when required for containment isolation. The licensee also initiated engineering changes to revise the valve control logic as a permanent resolution to the issue.

Inspection Report# : [2004010\(pdf\)](#)

Barrier Integrity

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Significance: Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ENSURE TEST PROGRAM FOR STROKE TIMING THE MAIN STEAM ISOLATION VALVES WAS APPROPRIATE

A finding of very low safety significance was identified on April 26, 2005, due to the unacceptable preconditioning of the Unit 1 main steam isolation valves prior to performing as-found stroke time testing. This finding resulted in a Non-Cited Violation of 10 CFR Part 50, Appendix

B, Criterion XI. The primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution in that, licensee personnel had previous operating experience which indicated that performing maintenance prior to conducting main steam isolation valve as-found stroke time testing was not appropriate. The inspectors determined that although the licensee took actions to address the specific preconditioning concern, the actions taken to address the extent of condition were not timely.

This issue was more than minor because it was associated with attributes of the barrier integrity and mitigating systems cornerstones and impacted the objectives of both cornerstones. The issue was of very low safety significance because the issue involved inadequate testing which did not degrade the ability of the main steam isolation valves to perform their function. Corrective actions for this issue included revising the normal unit shutdown procedure to ensure that the main steam isolation valve stroke time test was performed when required, revising the outage planning procedure to include steps which ensured that preconditioning issues were identified and addressed as part of the outage planning and scheduling processes, revising the outage scheduling template to ensure that the as-found main steam isolation valve stroke time testing could not be rescheduled, and performing an extent of condition review.

Inspection Report# : [2005003\(pdf\)](#)

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Significance: Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

THREE MAIN STEAM SAFETY VALVES OUTSIDE OF TECHNICAL SPECIFICATION ALLOWED TOLERANCE

A finding of very low safety significance and a Non-Cited Violation of Technical Specification 3.4.3 were identified on April 5, 2005, due to the inability of three main steam safety valves to actuate within plus or minus one percent of the setpoint.

This finding was more than minor because if left uncorrected, the failure to ensure that the main steam safety valves actuated when required put the licensee at risk for exceeding their vessel overpressure limits following an accident or an anticipated transient without scram. This finding was of very low safety significance because the valves would have actuated within the plus or minus three percent assumed by the licensee's current vessel overpressure analysis and allowed by the American Society of Mechanical Engineers Code. Corrective actions for this issue included the installation of new main steam safety valves and submitting a license amendment to change the main steam safety valve operating tolerance.

Inspection Report# : [2005003\(pdf\)](#)

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Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF SAFETY VALVE DISCHARGE LINE FLANGES TO MEET CODE REQUIREMENTS

The inspectors identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in August 2004 due to the licensee's failure to adequately translate code design requirements into an operability evaluation for the main steam safety relief valve discharge line flanges.

This issue was more than minor because if left uncorrected the failure to perform adequate operability evaluations could become a more significant safety concern. This issue was of very low safety significance because it did not involve the degradation of a radiological barrier, a barrier used to protect the control room from smoke or toxic gases, and did not result in an actual open pathway in the physical integrity of the reactor containment. As part of the corrective actions for this issue, the licensee implemented compensatory actions to ensure continued operability of the installed flanges and initiated plans to modify the operable but degraded flanges to meet their design requirements.

Inspection Report# : [2004010\(pdf\)](#)

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Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

CONTROL ROOM EMERGENCY VENTILATION TEST FAILURE DUE TO INADEQUATE PROCEDURE AND DEFICIENT MODIFICATION TO HATCH COVERS

A finding of very low safety significance and a Non-Cited Violation of Technical Specification 3.7.4.A were identified by operations personnel in October 2004 due to the licensee's failure to demonstrate that the control room emergency ventilation system was capable of maintaining the control room emergency zone differential pressure at greater than 1/8 of an inch at a flow rate of 2000 standard cubic feet per minute since 1998.

This issue was determined to be more than minor because if left uncorrected, the condition of the control room emergency ventilation system would have continued to degrade without being identified by the licensee. This issue was of very low safety significance since the finding only represented a degradation of the radiological barrier provided for the control room. Corrective actions for this issue including providing additional sealing material to the cable tunnel hatch covers and revising the control room emergency ventilation surveillance procedures to ensure that the Technical Specifications continue to be met.

Inspection Report# : [2004010\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : November 30, 2005