Quad Cities 1
1Q/2006 Plant Inspection Findings

Initiating Events

Significance: G Feb 07, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO IDENTIFY DEGRADED UNIT 2 SNUBBER AND BROKEN WELDS ON PILOT VALVE/ACTUATOR SUPPORT
The inspectors identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI on January 17, 2006, for failure to conduct effective walkdowns during the Unit 2 and Unit 1 outages that occurred on December 30, 2005, and January 7, 2006, respectively. This resulted in the licensee's failure to identify components and systems degraded by increased steam line vibration at EPU power levels. Specifically, during the Unit 2 outage commencing on January 13, a severely degraded snubber (bent extension tube and nearly worn through spherical bearing and attachment pin) on the Unit 2 3D ERV discharge piping was found. In addition, broken tack welds were discovered on both ends of the 3D and 3E ERVs and on one end of the 3C ERV pilot valve/actuator support. Several additional deficiencies of lesser significance were identified during the January 15 Unit 1 outage. Based on the degradation mode and extent of the Unit 2 3D ERV snubber end connection damage and Unit 2 3D, 3C, and 3E ERV turnbuckle tack weld cracks, it was determined that the degraded conditions existed prior to the Unit 2 and Unit 1 outages on December 30, 2005, and January 7, 2006, respectively.

This finding was determined to be more than minor because, if left uncorrected, the finding would become a significant safety concern. Specifically, the degraded components would continue to degrade and, if not identified and corrected, could eventually result in component or system failure. This finding was of very low safety significance because the degraded items identified did not result in a loss of safety function of any system. The inspectors determined that this finding also affected the cross cutting area of problem identification and resolution because the licensee had performed multiple drywell walkdowns in an effort to assess the main steam line vibration impacts, but had failed to identify the degraded equipment discussed above. The licensee conducted additional focused walkdowns during the January 13, 2006, Unit 2 outage and the Unit 1 outage which began on January 15, 2006, and initiated Issue Report 451822 to document the issue and determine corrective actions to be taken.
Inspection Report# : 2006009*(pdf)*

Significance: G 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: G 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: G Feb 07, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO APPLY DESIGN CONTROL MEASURES TO ENSURE ERV PILOT VALVE/ACTUATOR SUPPORT WAS ADEQUATE FOR EPU OPERATION
The inspectors identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III on January 15, 2006, for failure to adequately implement design control measures to ensure that the ERV assemblies were suitable for Extended Power Uprate (EPU) operations. This resulted in the licensee's failure to identify that the ERV pilot valve/actuator supports (turnbuckles) would degrade at EPU power levels. Following the January 13, 2006, Unit 2 shutdown, the licensee reported broken turnbuckle tack welds on both ends of the 3D and 3E ERVs and on one end of the 3C ERV. Inspection of the threaded portions of the 3D turnbuckle indicated significant degradation from thread fretting and thread fracture.

This finding was determined to be more than minor because if left uncorrected, the ERV turnbuckles would continue to degrade, potentially fail, and result in an inoperable ERV or inadvertent opening of the ERV due to a pilot line failure. This finding was of very low safety significance because although the Unit 2 3D ERV turnbuckle was degraded and considered to be a design deficiency, the degradation/deficiency did not result in an ERV loss of function. The inspectors concluded that this finding also affected the cross cutting area of problem identification and resolution because the licensee had performed several evaluations regarding the acceptability of equipment operation at EPU power levels and had failed to identify the ERV turnbuckle as a high stress, and potential failure, location. Corrective actions for this issue included inspecting the remaining turnbuckle tack welds, scheduling an inspection of the Unit 2 3E ERV turnbuckle during the March 2006 refueling outage, performing additional extent of condition reviews to identify other EPU vulnerable components, and addressing the organizational issues which contributed to the failure to identify the turnbuckle as a potential high stress location.
Inspection Report# : 2006009*(pdf)*

Significance: G Feb 07, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
INADEQUATE MAINTENANCE PROCEDURE TO INSPECT ERV ACTUATORS
The inspectors identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V on January 10, 2006, for failure to implement procedures appropriate to the circumstance for previous inspection and disassembly of the Unit 1 3D ERV actuator. The licensee had not identified that the ERV actuator disassembly and inspection procedures failed to include the inspection of all critical components subject to wear or loosening. This resulted in the licensee's failure to adequately inspect the ERV pivot bolts for tightness or wear. In addition to significant wear identified on the Unit 1 3D ERV pivot bolts, one of the Unit 1 3E ERV pivot bolts was found backed out and the Unit 2 3D ERV was missing one of the two pivot bolts.

This finding was determined to be more than minor because, if left uncorrected, the ERV pivot bolts would continue to degrade or loosen and could result in the failure of an ERV to actuate when required. This finding was of very low safety significance because although the results of a subsequent pivot bolt inspection indicated that some of the bolts were degraded, missing, or loose, the degradation in these instances did not result in an actual loss of system function. Corrective actions for this issue included revising the appropriate maintenance procedures, inspecting the Unit 2 pivot bolts, and installing new pivot bolts where needed.
Inspection Report# : 2006009*(pdf)*

Significance: G 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)*

Significance: G 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)*

Significance: G 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)*

Significance: G 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)*

Significance: G 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)*

Significance: G 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)*

Significance: G 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)*

Barrier Integrity

Significance: G 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)*

Significance: G 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)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Last modified : May 25, 2006