Quad Cities 2
4Q/2007 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO CONTROL TRANSIENT COMBUSTIBLES IN THE CABLE SPREADING ROOM
An inspector-identified finding and a Non-Cited Violation of a Quad Cities Nuclear Power Station license condition for fire protection was identified on May 3, 2007, due to the failure to adequately control transient combustible materials in a transient combustible exclusion zone. Specifically, the inspectors discovered two large cardboard boxes and an aerosol spray can that contained methyl alcohol improperly controlled and unattended in the cable spreading room. Corrective actions for this issue included removing the materials from the cable spreading room, providing additional oversight of the transient combustibles control program, and clearly labeling the cable spreading room as a transient combustible exclusion zone.

The inspectors determined that this issue was more than minor because it could be viewed as a precursor to a significant event, i.e., fire impacting multiple pieces of safety-related equipment. Specifically, multiple vertical cable risers were located within the zone of influence for the aerosol can. The inspectors determined that this issue was of very low safety significance based upon the criteria established in Inspection Manual Chapter 0609F, Table 2.9.1, “Risk Significance Based on ?Core Damage Frequency.” The inspectors concluded that this finding was cross-cutting in the area of Human Performance, Work Practices, Oversight, in that the licensee did not ensure that supervisory and management oversight of work activities, including contractors, was appropriate such that nuclear safety was supported.
Inspection Report# : 2007004 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: FIN Finding
MANUAL REACTOR SCRAM DUE TO PLUGGED PRESSURE SENSING LINE
A finding of very low safety significance was self-revealed on February 28, 2007, when operations personnel inserted a manual scram in response to increasing condenser back pressure. The licensee determined that blockage of an offgas system pressure sensing line created a condition which resulted in a system relief valve opening. The open relief valve caused the 2A steam jet air ejector efficiency to drop and increased condenser back pressure. Corrective actions for this issue included removing the blockage from the sensing line and developing a periodic maintenance task to ensure the sensing line remained clean. No violations of NRC requirements were identified due to the offgas system being non-safety related.

This finding was more than minor because it was associated with the equipment performance and procedure adequacy attributes of the initiating events cornerstone. The finding also impacted the cornerstone’s objective of limiting the likelihood of events that upset plant stability and challenge safety functions. This finding was of very low safety significance because adequate mitigating systems equipment remained available to respond to a transient with a loss of the power conversion system. The inspectors concluded that this finding was cross-cutting in the area of human performance, resources (H.2(c)), in that the licensee failed to have complete, accurate, and up-to-date procedures regarding pressure sensing line maintenance.
Inspection Report# : 2007003 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation

FAILURE TO HAVE PROCEDURES APPROPRIATE TO THE CIRCUMSTANCE FOR REPLACING THE MAIN STEAM LINE LOW PRESSURE TIME DELAY RELAY
A self-revealed finding was identified when Unit 2 experienced an unexpected half Group I containment isolation signal on January 23, 2007. The half isolation signal was caused by the licensee's failure to have procedures appropriate to the circumstance for replacing the main steam line low pressure time delay relays. As a result, one of eight relays installed in 1991 was allowed to remain in operation until it failed. The inspectors determined that the failure to have procedures for replacing the relays was a Non-cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings." Immediate corrective actions included replacing the failed relay, resetting the half containment isolation signal, and implementing a preventive maintenance activity to replace the remaining relays at a later date.

This finding was more than minor because it was associated with the procedure quality attribute of the Initiating Events Cornerstone. It also affected the cornerstone objective of limiting the likelihood of events that upset plant stability. The inspectors determined that the finding was of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. Lastly, the inspectors concluded that this finding was cross-cutting in the area of Human Performance, Resources, because the licensee did not have complete, accurate, and up-to-date procedures for replacing the relays.
Inspection Report# : 2007002 *(pdf)*

Mitigating Systems

Significance:  Sep 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO PROMPTLY CORRECT MARCH 2007 1D RESIDUAL HEAT REMOVAL PUMP BREAKER FAILURE
A self-revealing finding and a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, was identified in September 2007 for the failure to identify and correct a condition adverse to quality. Specifically, the licensee failed to assure that the cause of the March 2007 failure of the 1D residual heat removal pump breaker was promptly identified and corrected. This resulted in an additional 1D residual heat removal pump breaker failure in May 2007. Corrective actions for this issue included performing an extent of condition review and modifying all of the Unit 1 Merlin Gerin breakers and cubicles. At the conclusion of the inspection period, 17 of the 47 Unit 2 breaker cubicles had also been modified. The remainder will be modified during the next Unit 2 refueling outage.

This issue was more than minor because, if left uncorrected, the failure of safety-related breakers would continue to result in the inoperability of risk significant equipment. This finding was of very low safety significance because it was not a design deficiency, did not result in the total loss of a safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding was determined to be cross-cutting in the area of Problem Identification and Resolution, Corrective Action Program, Evaluation, because the licensee failed to thoroughly evaluate the March 2007 breaker failure to ensure that the resolution addressed the cause and extent of condition.
Inspection Report# : 2007004 *(pdf)*

Significance: SL-IV Sep 07, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate 10 CFR 50.59 Evaluations for the Main Steam Line Tunnel High Temperature Instrumentation and the Electrohydraulic Control System Pressure Regulator
The inspectors identified a Severity Level IV NCV of 10 CFR 50.59(d)(1) for the licensee’s failure to perform an adequate 10 CFR 50.59 evaluation for bypassing a channel of the Main Steam Line (MSL) tunnel high temperature instrumentation and for the failure to perform an adequate 10 CFR 50.59 evaluation for changing the license basis to allow operating the Electrohydraulic Control (EHC) System pressure regulator with only one channel in service. Even though the licensee did not intend to operate the plant permanently with a channel of the MSL tunnel high temperature bypassed or with only one EHC pressure regulator channel, the 10 CFR 50.59 evaluations that were performed

allowed it. Because of this, the inspection team could not reasonably determine that these changes would not have required a license amendment, because the bypassing of the MSL tunnel high temperature channel could have resulted in more than a minimal increase in the likelihood of a malfunction of a structure, system, or component important to safety. Additionally, the change to allow operating the EHC System pressure regulator with only one channel in service could have created a possibility of a malfunction of an SSC important to safety with a different result. This issue was entered into the licensee's 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 these 10 CFR 50.59 evaluations would not have ultimately required NRC prior approval. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) 0609, Appendix A, Phase 1 screening for the mitigating systems cornerstone and determined that the finding was of very low safety significance because they were able to answer "no" to the Mitigating Systems screening questions in the Phase 1 Screening Worksheet. Specifically, while the licensee failed to perform an adequate 10 CFR 50.59 evaluation for bypassing a channel of the MSL tunnel high temperature instrumentation and for allowing operation of the EHC System pressure regulator with only one channel in service, the licensee would have been able to perform these same actions under the NRC Part 9900 Technical Guidance for Degraded or Nonconforming Conditions.
Inspection Report# : 2007008 *(pdf)*

Significance: G Sep 07, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Account for Delays in ECCS MOV's Due to Voltage Dips during Load Sequencing
The inspections identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," that was of very low safety significance. Specifically, Motor Operated Valve (MOV) delays caused by voltage dips during load sequencing were not translated into and accounted for in the design basis for the In-Service Testing (IST) stroke time acceptance criteria for the Residual Heat Removal (RHR) system inboard and outboard shutoff valves and two core spray inboard isolation valves. This 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 "Design Control," and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the MOV delays caused by voltage dips during Emergency Core Cooling System (ECCS) load sequencing were not accounted for in the licensee's design basis. This introduced non-conservativisms in the margins for MOV IST acceptance criteria and also potentially for the acceptance criteria themselves. This finding was of very low safety significance, because the inspectors answered "no" to all five questions under the Mitigating Systems Cornerstone column of the Phase 1 worksheet. Specifically, even though the MOV delays were non-conservative, the actual MOV stroke times during the most recent IST testing for the valves in question were much less than the IST acceptance criteria
Inspection Report# : 2007008 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: FIN Finding
INADEQUATE OPERABILITY JUSTIFICATION FOR UNIT 2 4 KV BREAKERS
The inspectors identified a finding of very low safety significance on May 21, 2007, due to the failure to adequately document and justify the basis for continued operability of the 4 kV breakers in Unit 2 following the identification of a common mode failure mechanism on the 4 kV breakers in Unit 1. In response to this issue, the licensee documented additional information to justify the continued operability of the breakers. The licensee was also developing additional corrective actions to improve the implementation of the operability determination/evaluation process. No violation of NRC requirements was identified because operability determinations were not required by NRC regulations.

This finding was more than minor because if left uncorrected, continued inadequate justifications could result in incorrectly concluding that safety-related components remained operable rather than inoperable. This finding was of very low safety significance because it was not a design deficiency, did not result in a loss of safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors concluded that this finding was cross-cutting in the area of human performance, decision making (H.1(b)), in that the

licensee did not use conservative assumptions to demonstrate that the proposed action was safe rather than unsafe.
Inspection Report# : 2007003 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: FIN Finding
INADQUATE OVERSIGHT AND PERFORMANCE OF TRAINING RESULTS IN TRIPPING AN OPERATING CONTROL ROOM FAN
A self-revealed finding was identified on January 1, 2007, when an initial license trainee tripped the "A" control room ventilation system during a training evolution. The inspectors determined that inadequate oversight of the training evolution by the task performance evaluator contributed to this issue. No violation of NRC requirements was identified because the "A" control room ventilation system was non-safety related.

The failure to perform and provide appropriate oversight of training activities was determined to be more than minor because, if left uncorrected, it would lead to the unexpected shut down of other risk significant equipment and the performance of negative training. This finding was of very low safety significance because it did not represent a degradation of the control room radiological barrier, a degradation of the control room smoke or toxic gas barrier, or an actual open pathway in the reactor containment. The inspectors determined that this finding was cross-cutting in the area of Human Performance, Work Practices, because the licensee failed to ensure that the supervisory and management oversight of work activities was appropriate to ensure that nuclear safety was supported.
Inspection Report# : 2007002 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
REPLACING UNIT 2 PORVS WITH ERVS NOT IN ACOCRDANCE WITH 10 CFR 50.49
The team identified a finding of very low safety significance involving the replacement of an environmentally qualified (EQ) Category I component with an EQ Category II component. Specifically, a Non-Cited Violation of 10 CFR 50.49, was associated with this finding, in that, in 2004, the licesee replaced the Target Rock Power Operated Relief Valves, qualified Category I in accordance with environmental qualificiation requirements, with Dresser Electromatic Relief Valves, qualified as Category II components, which was not allowed under the regulation. Corrective actions for this issue included evaluating whether the currently installed valves could be qualified as EQ Category I components.

The finding was more than minor because it was associated with the design control attribute of the Mitigating System cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety signficance because the valves continued to be operable based upon qualification to EQ Category II. Therefore, reasonable confidence remained that the valves would perform their safety function under accident conditions. This finding is related to the cross-cutting element of Human Performance, Decision Making, in that the licensee did not use conservative assumptions in the decision to replace EQ Category I valves with EQ Category II valves. Specifically, the licensee continued to rely on an incorrect interpretation that EQ requirements were met.
Inspection Report# : 2007002 *(pdf)*

Barrier Integrity

Significance: G Sep 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO FOLLOW PROCEDURES AND USE HUMAN PERFORMANCE TOOLS RESULTS IN REACTOR BUILDING VENTILATION ISOLATION
A self-revealing finding and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, was identified on

September 8, 2007, due to the failure to follow procedures during the performance of Unit 1 125 Vdc ground detection activities. The failure to follow procedures resulted in the inadvertent isolation of the Unit 2 reactor building ventilation system. Corrective actions for this issue included restoring the isolated plant equipment, briefing personnel on the event, revising the ground detection procedure to ensure consistency with other Exelon stations, requiring additional oversight of ground detection activities, and implementing additional human performance improvement initiatives.

The inspectors determined that this issue was more than minor because if left uncorrected, it would lead to additional equipment issues. The inspectors determined that this issue was of very low safety significance because it did not represent a degradation of a radiological barrier provided by the standby gas treatment system, did not represent a degradation of the barrier function of the control room ventilation system against smoke or a toxic atmosphere, and did not represent an actual open pathway in the physical integrity of the reactor containment. The inspectors concluded that this finding was cross-cutting in the area of Human Performance, Work Practices, Human Error Prevention because the licensee's human error prevention techniques were not used to ensure that the work activity was performed safely.
Inspection Report# : 2007004 *(pdf)*

Emergency Preparedness

Significance:  Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO COMPLETE HYDROSTATIC TESTS ON ALL SCBA AIR BOTTLES AT PROCEDURAL REQUIRED INTERVALS
The inspectors identified a Green finding and a Non-Cited Violation of NRC requirements on February 8, 2007, due to the licensee's failure to complete hydrostatic tests on multiple self-contained breathing apparatus (SCBA) air bottles at the required frequency. The inspectors determined that approximately 12 percent of the in-service emergency response related SCBA air bottles had not been tested within the previous 3-year period as required by licensee procedures.

The issue was more than minor because it was associated with the facilities/equipment attribute of the Emergency Preparedness Cornerstone. The finding also affected the cornerstone objective of ensuring the licensee was capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors determined that the issue resulted in a failure to comply with 10 CFR 50.54(q) and the Emergency Plan requirements associated with one of the Planning Standards in 10 CFR 50.47(b). The issue also represented a degradation of the emergency worker protection portion of the Planning Standard provided in 10 CFR 50.47(b)(10) that involved more than an isolated, small percentage of the licensee's SCBA equipment. Since the finding did not represent a functional failure of the Planning Standard, the finding was determined to be of very low safety significance. This finding was also cross-cutting in the area of Human Performance, Resources, because the principal cause of the problem was the lack of an adequate procedure and process to ensure that SCBA bottles were tested at the proper frequency and tracked in the licensee's inventory. Corrective actions for this issue included hydrostatic testing of the affected bottles, verification that all other SCBA bottle hydrostatic tests were current, expanding the SCBA bottle monthly inspection requirements, and plans to re-evaluate the process used to introduce newly acquired SCBA equipment into the licensee's inventory.
Inspection Report# : 2007002 *(pdf)*

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

Last modified : February 04, 2008