Limerick 2

Initiating Events

Significance: G May 12, 2001
Identified By: NRC
Item Type: FIN Finding
Personnel Performance Related to Nonroutine Plant Evolutions and Events
Operators did not conduct a thorough pre-job briefing prior to a non-routine feedwater control system manipulation. Consequently, the operators were not prepared to respond to an unexpected drop in reactor vessel water level in a manner consistent with training and operational transient procedures. The finding was of very low safety significance because an automatic recirculation pump runback occurred which allowed restoration of proper reactor vessel waterlevel prior to exceeding the low reactor vessel water level reactor scram set point. (Section 1R14)
Inspection Report# : 2001004*(pdf)*

Mitigating Systems

Significance: G Jun 30, 2001
Identified By: NRC
Item Type: NCV NonCited Violation
Maintenance Risk Assessments and Emergent Work Evaluation - Failure to perform a risk assessment for RCIC test
The inspectors identified a Non-Cited Violation of 10 CFR 50.65 (a)(4) for failure to assess risk prior to performing maintenance activities. Exelon did not assess the risk of performing a Unit 2 reactor core isolation cooling system test concurrent with other scheduled work. This finding was of very low safety significance because Exelon did not perform work on systems that should have been protected while the reactor core isolation cooling system was unavailable, there was no loss of safety function, and the reactor core isolation cooling system was returned to service within the allowed outage time of the technical specifications. (Section 1R13)
Inspection Report# : 2001005*(pdf)*

Significance: G Jun 30, 2001
Identified By: Licensee
Item Type: NCV NonCited Violation
Failure to follow clearance and tagging procedures for 2A safeguard piping fill pump
Technical Specification 6.8.1 requires that written procedures be established, implemented and maintained for the activities listed in Appendix A of Regulatory Guide 1.33. The activities include equipment control (e.g., locking and tagging). On or about April 16, 2001, equipment control procedures were not followed, causing the 2A safeguard piping fill pump to be inoperable for the feedwater fill containment leakage mitigation function. (4OA7)
Inspection Report# : 2001005*(pdf)*

Significance: G May 12, 2001
Identified By: NRC
Item Type: NCV NonCited Violation
Permanent Plant Modifications
Six of the 2N SRV outlet flange studs were missing or loose, and torque values on outlet flange studs of all other Unit 2 SRVs were found to be substantially below the specified range. Exelon's root cause investigation indicated that the safety relief valve outlet flange studs loosened as a result of use of a gasket that was subject to excessive creep, inadequate torque values, and poor torque value determination guidance. The inspectors identified a violation of 10 CFR 50 Appendix B, Criterion III, "Design Control." This violation is being treated as a non-cited violation consistent with Section VI.A. of the NRC Enforcement Policy. This finding was of very low significance because the SRV outlet flange joint integrity was maintained. (Section 1R17)
Inspection Report# : 2001004*(pdf)*

Significance: G Mar 31, 2001
Identified By: NRC
Item Type: FIN Finding
Heat Sink Performance
The inspector identified that the 2A, 2B, and 1A residual heat removal system heat exchangers were not performance tested consistent with commitments to GL 89-13 in that specified testing intervals were exceeded. The finding was of very low significance because although the required performance tests of the RHR heat exchangers were not conducted within the required testing intervals, no actual loss of safety function occurred. (Section 1R07)
Inspection Report# : 2001003*(pdf)*

Significance: G Dec 31, 2000
Identified By: Licensee
Item Type: NCV NonCited Violation
Surveillance Requirements
Technical Specifications Surveillance Requirement 4.5.1.b.3 requires that the high pressure coolant injection (HPCI) pump develop 5600 gpm against a test line pressure of 1040 psig plus head and line losses. There were three occasions in which HPCI had not been tested consistent with these parameters, as reported in LER 1-00-004. This issue was addressed in PECO's corrective action program as PEP I0011914. (Section 4OA7)
Inspection Report# : 2000009*(pdf)*

Significance: G Sep 30, 2000
Identified By: NRC
Item Type: NCV NonCited Violation
Suppression Pool Cleanup System was not in the Limerick Maintenance Rule Program
The inspector identified that the Unit 1 suppression pool cleanup system, a non-safety related system explicitly used in Limerick's emergency operating procedures, was experiencing performance problems and was not included in the scope of Limerick's Maintenance Rule program as required. This finding affects the Mitigating Systems Cornerstone and is considered to have a very low safety significance as there were other methods to remove excess water inventory from the suppression pool. This issue was a violation of 10 CFR 50.65, paragraph (b)(2) and is being treated as a Non-Cited Violation. (Section 1R12)
Inspection Report# : 2000007*(pdf)*

Significance: G Sep 30, 2000
Identified By: NRC
Item Type: NCV NonCited Violation
Operators Did Not Document an Aux Equipment Room Fan Failure
PECO operators did not follow procedures for identification and resolution of problems and properly document an equipment failure in the "A" auxiliary equipment room ventilation system. As a result, a deficiency in the system was not detected for about six weeks until a subsequent failure occurred. This finding affects the Mitigating Systems Cornerstone and the safety significance of this issue was very low because the auxiliary equipment room ventilation system's redundant fan remained functional thereby maintaining the system available but degraded. This issue was a violation of 10 CFR 50 Appendix B, Criterion V and is being treated as a Non-Cited Violation. (Section 1R12)
Inspection Report# : 2000007*(pdf)*

Significance: G Dec 29, 2001
Identified By: Licensee
Item Type: NCV NonCited Violation
Missed Technical Specification Surveillance Requirement 4.8.1.1.2.b.2 for diesel generator fuel oil storage tanks.
Technical Specification 4.8.1.1.2.b.2 requires that water in the emergency diesel generator fuel oil storage tank be removed every 31 days. On July 11, 2001, the licensee identified water in the D11 and D12 fuel oil storage tanks. The subsequent investigation revealed that during previous surveillance testing, an accumulation of water in the fuel oil storage tanks was not identified and therefore not removed as required. This issue was entered in the licensee's corrective action process as condition report (CR) 61233. (Section 4OA7)
Inspection Report# : 2001012*(pdf)*

Significance: G Nov 10, 2001
Identified By: NRC

Item Type: FIN Finding
Unit 2 standby liquid control system pump relief valve setpoints were too low
The inspector identified that the Unit 2 standby liquid control pump relief valve setpoints were too low such that during some failure to scram scenarios a relief valve could open and divert some standby liquid control flow from the reactor vessel. The finding was of very low risk significance since there was no actual loss of safety function because an operability determination supported by a detailed analysis found that the standby liquid control system would still deliver sufficient flow to meet the injection requirements and thereby mitigate all postulated events. (Section 1R17)
Inspection Report# : 2001011*(pdf)*

Significance: G Sep 30, 2001
Identified By: Licensee
Item Type: NCV NonCited Violation
TS 3.6.6.1 requires restoration of an inoperable containment Hydrogen recombiner within 30 days or be in a hot shutdown within the next 12 hours
Technical Specification (TS) 3.6.6.1 requires restoration of an inoperable containment hydrogen recombiner within 30 days or be in a hot shutdown within the next 12 hours. This requirement was exceeded in September 2000, when the 2B hydrogen recombiner was in an undetected inoperable condition. A noncompliance with Technical Specifications 3.0.3 and 3.0.4 also occurred as a result of this condition. This violation was reported in LER 2-01-003, and was addressed in the licensee's corrective action program as PEP I0012750. (4OA7)
Inspection Report# : 2001010*(pdf)*

Significance: G Sep 28, 2001
Identified By: NRC
Item Type: NCV NonCited Violation
Lack of 10 CFR 50, Appendix B, Criterion III, Design Control Measures for ESW Pump Wetwell Screen
The team identified a Non-cited violation (NCV) of 10 CFR 50, Appendix B Criterion III, for failure to implement adequate design control measures for the emergency service water wetwell screens to verify the adequacy of the design regarding clogging or damage to the screens. This finding was determined to be of very low safety significance (Green) by the Significance Determination Process, Phase 1, because calculations and quarterly pump test results indicated that the screens were not clogged and the emergency service water system was capable of performing its safety function. (Section 1R21)
Inspection Report# : 2001007*(pdf)*

Barrier Integrity

Significance: G Jun 30, 2001
Identified By: NRC
Item Type: NCV NonCited Violation
Operability Evaluations - Inoperable Safeguard Piping Fill Pumps -- Inadequate surveillance test procedure associated with 2B safeguard piping fill pump
The inspectors identified a finding of very low safety significance (Green) because both Unit 2 safeguard piping fill pumps were inoperable for the feedwater containment leakage mitigation safety function for approximately eight days. The 2B safeguard piping fill pump was inoperable because a surveillance test procedure that required a sampling of oil was inadequate and likely caused a low oil level condition that rendered the pump inoperable. This is a non-cited violation of 10 CFR 50 Appendix B, Criterion V, "Procedures." This issue was identified after inspectors questioned a less than adequate operability determination for the 2B pump. During the same time period the 2A safeguard piping fill pump was inoperable because the feedwater fill stop valve in the system was closed rather than open. This finding was of very low safety significance because there was no actual open pathway in the physical integrity of the reactor containment. (Section 1R15)
Inspection Report# : 2001005*(pdf)*

Significance: G Jun 30, 2001
Identified By: NRC
Item Type: FIN Finding
Operability Evaluations - Agastat Relays - operability determinations for relay failures
The inspectors identified a finding of very low safety significance (Green) because station personnel did not properly address the operability of an apparent adverse trend of premature relay failures. Operators did not perform a timely re-evaluation of operability when testing information identified a potential common failure mechanism. The subsequent operability review also did not consider several important aspects such as the impact on the containment isolation safety function and the need to shorten some system test intervals. This finding was of very low safety

significance because there was no actual open pathway in the physical integrity of the reactor containment. (Section 1R15)
Inspection Report# : 2001005*(pdf)*

Significance: SL-IV Dec 31, 2000
Identified By: NRC
Item Type: NCV NonCited Violation
Temporary Plant Modifications
The inspectors identified a Severity Level IV Non-Cited Violation for the failure to properly evaluate facility changes as required by 10 CFR 50.59 for installation of temporary ventilation in the Unit 1A reactor water cleanup (RCWU) pump room and the adjacent primary containment isolation valve room. PECO did not evaluate the impact of the modification on the RCWU isolation logic and on the combustible loading in the area. The results of the violation were assessed as a very low safety significance (green) because the impact of the RWCU isolation function would be minimal and because there was no significant increase in fire severity levels in the area. (Section 1R23)
Inspection Report# : 2000009*(pdf)*

Significance:  Nov 11, 2000
Identified By: NRC
Item Type: NCV NonCited Violation
Licensed Operator Requalification
PECO did not properly evaluate the change made to Operational Transient (OT) procedure OT-114, "Inadvertent Opening of a Relief Valve," in May 1996, in accordance with requirements of 10 CFR 50.59. Specifically, PECO did not evaluate whether the delay caused by performing actions to reconfigure electrical busses and reduce recirculation pump flow prior to placing the reactor mode switch to shutdown was consistent with the technical specifications and Updated Final Safety Analysis Report. The issue was considered to be of very low significance because: 1) there was conservatism associated in the design bases analysis and the assumptions for suppression pool heat capacity during this event; 2) the probability of a stuck open SRV with a second event that would challenge containment mitigation capacity is low. Failure to perform a safety evaluation for the changes to OT-114 was a violation of 10 CFR 50.59 and is being treated as a non-cited violation. (Section 1R11)
Inspection Report# : 2000008*(pdf)*

Significance:  Nov 10, 2001
Identified By: NRC
Item Type: VIO Violation
Adequate measures were not in place to identify that the 2N Safety/Relief Valve was in a degraded condition in which it was vulnerable to a failure to re-close after lifting
WHITE. The inspectors identified an apparent violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Actions," because adequate measures were not in place to identify that the 2N Safety/Relief Valve (SRV) was in a degraded condition in which it was vulnerable to a failure to re-close after lifting. Engineering personnel did not adequately characterize and evaluate the uncertainties in the 2N SRV pilot valve temperature monitoring plan when they recommended that the action temperature be changed from 497°F to 475°F. The finding is associated with the actual failure of the 2N SRV to re-close after it lifted as operators were reducing power in preparation for an outage to repair the SRV. The SRV was also in a condition, for approximately 81 days, in which the valve was vulnerable to a failure to re-close if it lifted. The finding has low to moderate safety significance because Phase 2 of the significance determination process identified two sequences with low to moderate risk significance. These sequences are: 1) a stuck open SRV with a failure of containment heat removal and a failure to vent the containment; and 2) a stuck open SRV with a subsequent loss of high pressure injection capability and a failure to depressurize the reactor vessel such that low pressure injection sources could be used for inventory makeup. (Section 1R15) The NRC issued the results of the final significance determination in a letter dated January 11, 2002.
Inspection Report# : 2001011*(pdf)*

Emergency Preparedness

Significance:  Mar 31, 2001
Identified By: NRC
Item Type: NCV NonCited Violation
Drill Evaluation
The inspector identified a Non-Cited Violation associated with the failure to correct a previously identified emergency preparedness exercise deficiency associated with the accuracy of the average reactor water level indication value displayed in the Technical Support Center and Emergency Operations Facility. The finding was of very low significance because although the emergency preparedness deficiency was not corrected, it did not result in a failure to meet an emergency preparedness planning standard. (Section 1EP6)
Inspection Report# : 2001003*(pdf)*

Significance: SL-III Nov 10, 2001
Identified By: NRC
Item Type: VIO Violation
Inoperable off-site sirens not identified due to falsified maintenance and testing records and installation of jumpers that bypassed siren failure detection circuitry
In NRC letter dated October 23, 2001, we issued a Severity Level III - Notice of Violation, (EA-01-189). (VIO 50-352;353/01-11-03) because inoperable off-site sirens were not identified due to falsified maintenance and testing records and installation of jumpers that bypassed siren failure detection circuitry. This violation is considered closed because the NRC has sufficient information on the docket concerning this issue and has documented inspection results directly related to the violation in combined inspection report 50-352/01-013 and 50-353/01-013. (4OA5.2)
Inspection Report# : 2001011*(pdf)*

Significance:  Sep 24, 2001
Identified By: NRC
Item Type: FIN Finding
Emergency Preparedness - Inadequate Drill Critique
WHITE. The inspectors determined that the licensee's critique of the February 9, 2001, operator crew drill to be inadequate due to the untimely identification of an emergency classification problem. The crew had inappropriately declared a General Emergency based upon incorrect criteria when a legitimate criterion was available. (Section 1EP6.b) The failure to identify a risk significant planning standard during a drill was more than minor and significant because it had a credible impact on safety, in that inadequate critiques could result in classification errors which, in an actual event, could impact offsite agencies' abilities to implement protective actions for the public. EA-01-246 The NRC issued the final results of the significance determination in a letter dated November 19, 2001.
Inspection Report# : 2001016*(pdf)*

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Jun 27, 2001
Identified By: NRC
Item Type: FIN Finding
Summary Conclusion regarding the effectiveness of the Problem Identification and Resolution (PI&R) program from the annual PI&R inspection.
The team concluded that the overall implementation of the corrective action program was adequate. Exelon was, with a few exceptions, effective at identifying problems. In general, problems were properly captured and characterized in the Performance Enhancement Program (PEP). Based upon the sample reviewed, items entered into PEPs were properly classified and prioritized for resolution. Evaluations and root cause analyses were of good depth and quality. Exelon's resolution of problems was adequate. The prescribed corrective actions appeared appropriate to correct the problems and were generally completed in a timely manner. However, the team noted that prior corrective actions were not fully effective in addressing weaknesses in operability determinations.
Inspection Report# : 2001006*(pdf)*

Significance: N/A Jun 30, 2000
Identified By: NRC
Item Type: FIN Finding
Problem Identification and Resolution
Overall, the LGS was found to have an adequate PI&R program. Observations showed a well used multi-tier problem reporting system that included a daily multi-departmental panel review of each newly issued corrective action item to assess its significance, to assign responsibility, and to assign priority for resolution through the action item tracking process. Problem cause analysis was adequate for individual items including

operability and reportability evaluations. Corrective actions were generally effective and found to be timely and commensurate with the safety significance of the issue. Based on numerous interviews conducted during this inspection, workers at the station felt free to input safety issues into the station's PI&R programs. The team identified areas for improvement in the PI&R program. For example, some elements of the PI&R program have not been fully effective in resolving common causes, particularly human performance issues. Human performance is a cross-cutting issue that had been identified as a contributor to various problems occurring at the station including automatic reactor shutdowns, component mis-positionings, and procedure violations. PECO identified similar areas for improvement and has initiated specific documented plans and actions to address this matter and improve performance in PI&R. (Section 4OA2)
Inspection Report# : 2000005*(pdf)*

Significance: SL-IV Jun 16, 2000
Identified By: NRC
Item Type: NCV NonCited Violation
Problem/Issue Cause Analysis
NO COLOR. A Non-cited Violation of 10 CFR 50, Appendix B, Criterion V, was identified, associated with five examples of failure to implement the written procedures of the corrective action program, an activity affecting quality. Four examples involved failure to properly classify adverse trend corrective action items as required by the corrective action program procedure LR-CG-10. The adverse trend items were associated with various topics including component mispositioning, procedure adherence, and reactor downpower events. The fifth example of failure to implement LR-CG-10 involved failure to conduct an operability evaluation of emergency diesel generators (EDGs) in April 2000, when PECO determined that 70 of 88 flex-coupling clamps on the cooling water systems of its EDGs were over-tightened. The failure to implement the procedures of the corrective action program is considered more than a minor violation in that it suggests a programmatic problem that has a credible potential to impact safety and involved more than an isolated occurrence.
Inspection Report# : 2000005*(pdf)*

Last modified : March 27, 2002