



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713**

August 1, 2012

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Rd.
Warrenville, IL 60555

SUBJECT: LIMERICK GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000352/2012003 AND 05000353/2012003

Dear Mr. Pacilio:

On June 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Limerick Generating Station, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on July 30, 2012 with Mr. P. Gardner, Plant Manager, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding of very low safety significance (Green). The finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance, and because the issue has been entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Limerick Generating Station. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at Limerick Generating Station.

In accordance with 10 *Code of Federal Regulations* (CFR) 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly

Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Paul G. Krohn, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos.: 50-352, 50-353
License Nos.: NPF-39, NPF-85

Enclosure: Inspection Report 05000352/2012003 and 05000353/2012003
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-352, 50-353

License Nos.: NPF-39, NPF-85

Report No.: 05000352/2012003 and 05000353/2012003

Licensee: Exelon Generation Company, LLC

Facility: Limerick Generating Station, Units 1 & 2

Location: Sanatoga, PA 19464

Dates: April 1, 2012 through June 30, 2012

Inspectors: E. DiPaolo, Senior Resident Inspector
J. Hawkins, Resident Inspector
J. Caruso, Senior Operations Engineer
T. Hedigan, Operations Engineer
S. Barr, Senior Emergency Preparedness Inspector
J. Laughlin, Emergency Preparedness Inspector, NSI

Approved By: Paul G. Krohn, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000352/2012003; 05000353/2012003; 04/01/2012-06/30/2012; Limerick Generating Station, Units 1 and 2; Maintenance Effectiveness.

This report covered a three-month period of inspection by resident inspectors and an announced inspection performed by a regional inspector. Inspectors identified one finding of very low safety significance (Green), which was a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after U.S. Nuclear Regulatory Commission (NRC) management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Mitigating Systems

Green. The inspectors identified that a Green NCV of 10 *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," occurred because the licensee did not conduct timely corrective actions to address age-related degradation of direct current motor operated valve (DC MOV) relays. Specifically, Limerick experienced multiple age-related failures of ARD type relays that were known to be susceptible to age-related degradation and were beyond their vendor recommended lifetime. The licensee did not prioritize replacement of the relays which led to the relay replacement preventative maintenance (PM) to be scheduled as much as eight years past their vendor recommended lifetime.

The inspectors determined that the licensee not conducting timely corrective actions to address age degradation of safety-related DC MOV relays was a performance deficiency. The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding was determined to be of very low safety significance (Green) using Attachment 4 to IMC 0609, "Significance Determination Process," because the untimely corrective actions did not result in an actual loss of safety function. The finding has a cross-cutting aspect in the corrective action component of the problem identification and resolution area because the licensee did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary, including properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. [P.1.c] (Section 1R12).

Other Findings

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On April 19, operators inserted an unplanned manual scram per procedural requirements following a main turbine runback and the loss of the reactor recirculation pumps due to the loss of main generator stator cooling water. The loss of stator cooling was the result of an electrical transient caused by a fault on a balance-of-plant transformer. On April 20, operators commenced a reactor startup, synchronized the main generator to the grid on April 21, and returned the unit to 100 percent power on April 23. Operators reduced power to 95 percent on April 28 to perform a follow up control rod pattern adjustment and returned power to 100 percent on April 29. On June 9, operators reduced power to approximately 80 percent to facilitate control rod scram time testing, main steam and main turbine valves testing, and other balance-of-plant maintenance. The unit was returned to 100 percent power on June 10. Unit 1 remained at or near 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. During the inspection period, power was periodically lowered during periods of high condensate temperature due to environmental conditions (i.e., high outside temperatures). On May 17, operators commenced a planned shutdown for a maintenance outage to replace two leaking safety/relief valves, conduct reactor recirculation pump motor-generator maintenance, and to perform inspections on low pressure turbines. Following the maintenance activities operators commenced a reactor startup on May 25, synchronized the main generator to the grid on May 26, and returned the unit to 100 percent power on May 27. Later that day operators reduced power to 88 percent when they noted that main turbine control valve positions were inconsistent with reactor power. On May 30, after troubleshooting had determined that the number three main turbine control valve was disconnected from its positioner, operators commenced a plant shutdown. On June 2, following repairs and extent of condition inspections, operators commenced a reactor startup. After initial criticality on June 3, operators, challenged by high notch reactivity worth control rods, aborted the reactor startup when the reactor went subcritical due to reactor coolant system heatup. Subsequent to procedure revisions and a change to the control rod sequence, a plant startup was recommenced later that day. Operators synchronized the main generator to the grid on June 4 and returned the unit to 100 percent power on June 6. Unit 2 remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

Summer Readiness of Offsite and Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate the readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Exelon's procedures affecting these areas and the communications protocols between

the transmission system operator and Exelon. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether appropriate procedures and protocols were established and implemented to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system manager, reviewing issue reports (IRs) and open work orders, and walking down portions of the offsite and AC power systems including the 220 and 500 kilo-volt (kV) switchyards. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns (71111.04Q – 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 'B' control room emergency fresh air system (CREFAS) when 'A' CREFAS was out-of-service for planned maintenance on May 7, 2012
- Unit 2 reactor core isolation cooling (RCIC) system when the high pressure coolant injection (HPCI) system was out-of-service for planned maintenance on June 19, 2012
- Unit 2 'A' loop of residual heat removal (RHR) system when the 'B' loop was out-of-service for planned maintenance on June 25, 2012

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the updated final safety analysis report (UFSAR), technical specifications, work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Exelon staff had properly identified equipment issues and entered them into the corrective action program for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 4 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Exelon controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Fire Area 2, Unit Common 13kV Switchgear Area Room 336 (elevation 217)
- Fire Area 4, Unit 1 Class 1E Battery Room 324 (elevation 217)
- Fire Area 66, Unit 2 Safeguard System Isolation Valve Room 376 (elevation 217)
- Fire Area 67, Unit 2 Safeguard System Access Area Room 370 (elevation 217)

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification

.1 Resident Inspector Quarterly Review (71111.11Q – 1 sample)

a. Inspection Scope

The inspectors observed licensed operator simulator training scenarios on May 1, 2012, which included equipment failures, reactor coolant system leakage, and leakage outside containment. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements entered. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Licensed Operator Performance (71111.11Q - 1 sample)

a. Inspection Scope

The inspectors observed licensed operator performance in the main control room during the Unit 2 reactor startup and power ascension which commenced on June 2. The inspectors verified operator compliance and use of plant procedures, performance of procedure steps in the proper sequence, and proper Technical Specification usage. Pre-job briefs, the use of human error prevent techniques, communications between crew members, and supervision of activities were observed to verify that they were performed consistent with established plant practices.

b. Findings

No findings were identified.

.3 Licensed Operator Requalification – Limited Senior Reactor Operator (71111.11 – 1 sample)

a. Inspection Scope

The following inspection activities were performed using NUREG 1021, Revision 9, Supplement 1, "Operator Licensing Examination Standards for Power Reactors;" Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program;" and Appendix A, "Checklist for Evaluating Facility Testing Material."

A review was conducted of recent operating history documentation regarding fuel handling found in the licensees CAP. The inspectors also reviewed specific events from the licensees CAP to determine if possible training deficiencies existed. The inspectors noted repeated instances at Peach Bottom of fuel handling errors during refueling activities, and reviewed the root cause evaluation and corrective actions that were performed by the facility.

The inspectors evaluated the 2012 Limerick and the 2011 Peach Bottom Limited Senior Reactor Operator (LSRO) refueling operating tests and the 2012 Limerick, 2010 Peach Bottom LSRO biennial written and 2010 Peach Bottom biennial remediation examinations for quality and compliance with the Examination Standards. Administration of five job performance measures to eight operators at Limerick was observed on June 20 - 21, 2012.

On June 26, 2012, the results of the biennial written examinations at Limerick and annual operating tests for 2012 were reviewed to determine whether pass/fail rates were consistent with the guidance of NUREG-1021, Revision 9, Supplement 1, "Operator Licensing Examination Standards for Power Reactors," and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance SDP." All LSROs passed their annual operating examinations and seven of eight operators (87.5%) passed their Limerick LSRO Biennial written examination. Performance of all individuals over 2 years was reviewed and indicated no adverse trends. The remediation plans for two individuals' written failure in 2011 were reviewed to assess the effectiveness of the remedial training.

Two years of records for requalification training attendance and license reactivation for all eight LSROs were reviewed for compliance with license conditions and NRC regulations. Medical records for five LSROs were also reviewed.

A sampling of feedback was reviewed and training materials were evaluated for response to this feedback. These materials were also reviewed for incorporation of plant modifications and industry events.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 3 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, or component (SSC) performance and reliability. The inspectors reviewed system health reports, corrective action program documents, maintenance work orders, and maintenance rule basis documents to ensure that Exelon was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Exelon staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Exelon staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- 66kV third offsite power source failures (IR 1286902 and IR 1287692)
- DC motor-operated valve relay failures (ARD relays) (IR1341696 and IR 1045832)
- Emergency diesel generator (EDG) D13 1C2 air start train failure due to flex flo valve degraded condition (IR 1378119)

b. Findings

Introduction: A Green, NRC-identified finding associated with a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," occurred because the licensee did not conduct timely corrective actions to address age-related degradation of direct current motor operated valve (DC MOV) relays. Specifically, Limerick experienced multiple age-related failures of ARD type relays that were known to be susceptible to age-related degradation and which were beyond their vendor recommended lifetime. The licensee did not prioritize replacement of the relays which led to the relay replacement preventative maintenance (PM) to be scheduled as much as eight years past their vendor recommended lifetime.

Description: During the previous two years, the licensee has experienced failures of DC MOV relays due to age. In an April 2010 equipment apparent cause evaluation (EACE 1045832), the licensee documented that the Unit 1 High Pressure Coolant Injection (HPCI) steam admission valve (HV-055-1F001) did not properly operate due to the failure of the MOV's RCR relay during a normal reactor shutdown. The licensee determined the relay was last replaced in 1996 (14 yrs old at the time of failure). The licensee concluded the RCR relay was defective due to age. Based on vendor recommendations, the licensee created a PM change to replace RCR and FCR type

relays on a 12 year frequency in all DC MOVs. The licensee developed a list of all DC MOVs with ARD type relays (which can contain FCR, RCR, FX and RX relays). Although this list was developed, the PM change only addressed replacement of the RCR and FCR relays due to a narrowly focused extent of condition review performed as part of the EACE. The licensee also did not prioritize the relay replacement and document their evaluation of the relays with regard to the length of time these relays had exceeded the vendor recommended lifetime. Some of the replacements were scheduled up to eight years past the 12 year vendor recommended lifetime. The site operating experience reviewed by the April 2010 EACE included an issue that occurred in June 2007 involving the Unit 2 HPCI injection valve (HV-055-2F006) which failed to stroke open. The EACE (642617) performed for that failure attributed the failure to a stuck 'F' contactor and identified the RCR, RX and FCR relays as potential failure causes of the valve to stroke open. A corrective action was created clean these relays during 2R10 but the EACE did not evaluate the potential need to replace these relays due to age or evaluate the need for a time based replacement PM.

On March 16, 2012, the Unit 1 Reactor Core Isolation Cooling (RCIC) turbine exhaust PCIV (HV-049-1F060) to the suppression pool failed to fully close due to intermittent operation of the RX relay. The EACE (1341696) for this issue determined that the relay was last replaced in 1996 and the apparent cause for the relay failure was age-related degradation due to not having a replacement PM for the relay. The same list of DC MOVs with ARD type relays (which can contain FCR, RCR, FX and RX relays) provided in the 2010 EACE was incorporated into this EACE but again no prioritization for replacement of these relays was established. The licensee's PM 396318 (A1769221; R1171196) for replacement of the HV-049-1F060 ARD relay had been scheduled for 1R16 (nearly 20 yrs old at this point) prior to its failure.

Analysis: The performance deficiency is that the licensee did not conduct timely corrective actions to address age-related degradation of safety-related DC MOV relays. In addition to the untimely corrective actions, the licensee's EOC performed as part of the 2010 EACE was too narrowly focused, contributing to their failure to recognize and address all the relays that were susceptible to age-related degradation. As a result, a relay failed in 2012 and multiple relays were identified to still be overdue for replacement. The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding was determined to be of very low safety significance (Green) using Attachment 4 to IMC 0609, "Significance Determination Process," because the incomplete corrective actions did not result in an actual loss of safety function. The finding has a cross-cutting aspect in the corrective action component of the problem identification and resolution area because the licensee did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary, including properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality [P.1.c].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Contrary to the above, prior to March 2012, Exelon did not promptly correct a condition adverse to

quality associated with age-related degradation of control relays associated with safety-related DC MOVs. Specifically, age degradation of DC MOV relays was recognized following the failure of the Unit 1 High Pressure Coolant Injection (HPCI) steam admission valve (HV-055-1F001) in April 2010 (IR1045832), however, corrective actions did not address timely replacement of all the effected relays. Because the condition adverse to quality was not promptly identified and corrected, the Unit 1 RCIC turbine exhaust PCIV (HV-049-1F060) did not close during operation on March 16, 2012 due to an age-related relay failure. However, because this was of very low safety significance and it was entered into the corrective action program as AR 1380603, AR 1380605 and ACIT 1341695-14, consistent with Section 2.3.2 of the Enforcement Policy, this violation is being treated as a non-cited violation. **(NCV 05000352, 353/2012003-01, Failure to Conduct Timely Corrective Actions to Replace Age Degraded Relays)**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Exelon performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Exelon personnel performed risk assessments as required by 10 CFR 60.65(a)(4) and that the assessments were accurate and complete. When Exelon performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Unit 2 online risk profile on April 25 during EDG D21 monthly slow start testing and Unit 2 'A' RHR surveillance testing
- Unit 2 online risk profile from May 27 until May 30 due to elevated turbine trip risk when generator output breaker (CB 335) was open during emergent maintenance
- Unit 2 online risk management protective measures during the 'B' loop of RHR system outage window on June 25, 2012
- Online risk management protective measures when supplying power to 4kV buses via the third offsite 66kV power source

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 6 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- IR 1346775, Spray pond spray network clogging (OPE-11-007 Revision 2 and OPE-11-009 Revision 1 for reduced emergency service water (ESW)/residual heat removal service water (RHRSW) Flow)
- IR 1353319, Unit 2 HPCI/ESW Leak with HPCI unit coolers isolated and secured
- IR 1363858, Unit 2 'A' RHR high point vent switch did not actuate during calibration/functional testing
- IR 1366549, Operational decision evaluation regarding inspection scope for potential low pressure turbine blade cracking on Unit 2
- IR 1376347, Digital feedwater (Unit 2) loss of redundancy
- IR 1376415, EDG D23 failed to start

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and UFSAR to Exelon's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Exelon. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- IR 1349681, Error found in spray pond performance analysis – RT-2-011-251-0, ESW loop 'A' flow balance
- IR 1357541, EDG D24 voltage drop low out-of-specification
- IR 1366579, HV-012-032C spray nozzles 'C' inlet (spray inlet 'C')
- IR 1371395, Unit 2 turbine control valve #3 failed
- IR 1374862, Small fluctuations on HPCI system flow meter while shutdown
- C0243416, Unit 2 'B' RHR pump minimum flow valve failed to open during testing

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 2 samples)a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Unit 2 planned maintenance outage 2M45 from May 18 until May 26 (1st sample) and the Unit 2 forced outage 2F47 from May 31 until June 4 (2nd sample). The scope of 2M45 was to replace two leaking safety/relief valves, perform recirculation pump motor-generator maintenance, and to perform inspections on main generator low pressure turbines. Forced outage 2F47 was required to repair the number three main turbine control valve when it became disconnected from its positioner. The inspectors reviewed Exelon's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outages, the inspectors observed portions of the shutdown and cooldown processes, the startup and heatup process, and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by technical specifications
- Fatigue management

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 5 samples)a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied technical specifications, the UFSAR, and Exelon procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and

applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- RT-3-047-640-2, Fuel Channel Distortion Monitoring Performed on Unit 2
- ST-6-055-230-2, HPCI Pump, Valve and Flow Test Performed on Unit 2 (in-service test)
- ST-6-092-317-2, D23 Diesel Generator Fast Start Operability Test Run, Revision 43
- ST-6-092-323-1, D13 Under Voltage Channel Functional Test
- ST-6-107-590-1, Daily Surveillance Log/OPCON 1, 2, 3 completed April 22, 2012

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)

a. Inspection Scope

The Nuclear Security and Incident Response headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures and the Emergency Plan Annex located under ADAMS accession numbers ML12060A236, ML12096A075, and ML12088A343 as listed in the Attachment.

The licensee transmitted the Emergency Plan Implementing Procedure and Emergency Plan Annex revisions to the NRC pursuant to the requirements of 10 CFR 50, Appendix E, Section V, "Implementing Procedures." The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of an Exelon emergency drill on May 1, 2012, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, technical support center, and operational support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified

by Exelon staff in order to evaluate Exelon's critique and to determine whether the Exelon staff was properly identifying weaknesses and entering them into the corrective action program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures (2 samples)

a. Inspection Scope

The inspectors sampled Exelon's submittals for the Safety System Functional Failures (MS05) performance indicator for both Unit 1 and Unit 2 for the period of April 1, 2011 through March 31, 2012. To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73," Revision 2. The inspectors reviewed Exelon's maintenance rule records, IRs, and licensee event reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index (2 samples)

a. Inspection Scope

The inspectors reviewed Exelon's submittal of the Mitigating Systems Performance Index for the following systems for the period of April 1, 2011 through March 31, 2012:

- Unit 1 Emergency AC Power System (MS06)
- Unit 2 Emergency AC Power System (MS06)

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors also reviewed Exelon's operator narrative logs, IRs, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 3 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Exelon entered issues into the corrective action program at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the corrective action program and periodically attended condition report screening meetings.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Exelon outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, maintenance rule assessments, and maintenance or corrective action program backlogs. The inspectors also reviewed Limerick's corrective action program database for the first and second quarters of 2012 to assess IRs written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily IR review (Section 4OA2.1).

b. Findings and Observations

No findings were identified. The inspectors assessed that Exelon was identifying issues at a low threshold and entering the issues into the CAP for resolution. The inspectors noted a negative trend with plant issues related to preventive maintenance of plant equipment over the past several quarters. This resulted in findings or issues of concern as summarized below:

- a. Section 1R12 of this report documents an NRC-identified NCV because Exelon did not conduct timely corrective actions to address age degradation of DC MOV relays. Not prioritizing replacement of the relays resulted in relay replacement preventative maintenance (PMs) to be scheduled as much as 8 years past their vendor recommended lifetime.
- b. NRC Inspection Report 05000353/2011009 documented a White finding involving the failure by Exelon to ensure sufficient guidance was contained in operating procedures to: 1) ensure that a feedwater motor-operated valve could close against

expected system differential pressures; and 2) prevent operators from attempting to close feedwater valves out of sequence resulting in differential pressures for which they are not designed. The cross-cutting aspect associated with the issue was in the area of Human Performance, Resources, because Exelon did not ensure long term plant safety by maintaining design margins and minimizing preventive maintenance deferrals [H.2.(a)]. In addition to design limitations not adequately being captured in procedural guidance, preventive maintenance activities that may have prevented the issue were deferred without an appropriate evaluation.

- c. On November 11, 2011, while supplying power to the station's 101 Safeguard Transformer, the site's third offsite power source supplied from the 66kV Switchyard tripped due to the failure of a line insulator. Exelon determined that the failure was caused by deficient preventive maintenance. The work instructions to periodically inspect the line did not contain the full required scope of work as determined by an engineering evaluation when the preventive maintenance task was created in 2003.
- d. NRC Inspection Report 05000352, 353/2012002 documented the review of an inadvertent release through the station's cooling tower blow-down emergency overflow vent (Outfall 023) on March 19, 2012. The cause of the overflow was due to reduced discharge capability of the discharge diffuser located in the Schuylkill River due to blockage by silt and debris. The annual PM to clean the diffuser was deferred in December 2011 until summer 2012 due to high river level and flow conditions. The PM deferral evaluation did not recognize or address that abnormal radioactive effluent releases were a potential consequence of not performing the maintenance.
- e. NCV 05000352, 353/2011005-01 was issued due to inadequate corrective actions for a previous NRC finding associated with programmatic deficiencies in the PM program. The previous finding (NCV 05000352, 353/2010004-03) involved a failure to perform adequate PMs on an EDG due to site engineers not being fully aware of new PM requirements developed by Exelon corporate. The inspectors identified that the corrective action for the finding was not properly implemented, and, as a result, the deficiency associated with the PM program was not fully resolved.

The inspectors determined that except as noted, the events and issues described above were minor in nature. However, collectively they constituted a negative trend of plant issues and events related to the performance preventive maintenance of plant equipment. Exelon wrote IR 1393808 to perform a common cause analysis of the NRC-identified examples as well as other examples identified by Exelon.

.3 Annual Sample: Review of Recent Failures of ITT Barton Switches Installed on Emergency Core Cooling Systems

a. Inspection Scope

The inspectors reviewed a recent failure of a Barton differential pressure (D/P) switch on May 8, 2012, during the performance of surveillance test ST-2-051-404-2, "ECCS – LPCI Keep Filled System Injection Line 'A' Calibration LSL-051-210(A)." The inspectors performed an in-depth review of the recent history associated with Barton D/P switch failures including Exelon's evaluation of the issue and corrective action program history due to the potential for ECCS system inoperability.

To determine whether Exelon was appropriately identifying, characterizing, and correcting failures associated with aging of Barton D/P switches, the inspectors assessed Exelon's problem identification threshold, extent of condition reviews, and prioritization, timeliness and adequacy of corrective actions.

b. Findings and Observations

No findings were identified. In July 2007, Exelon experienced erratic indication on the Core Spray (CS) low level switch (LSL-052-110A) during a planned surveillance test. The CS loop was declared inoperable during the erratic indication and the switch was replaced. At this time, Exelon identified 175 components containing Barton D/P switches, the most critical being the CS switches due to a potential 7-day LCO entry requirement if one of the switches failed. Exelon's apparent causal evaluation (IR 651751) determined that these switches were susceptible to age-related failures. Exelon's ACE determined that the critical switches (switches associated with CS system due to the 7-day LCO) needed to be replaced and work orders were created to replace the critical CS switches. The inspectors noted that no reoccurring preventative maintenance (PM) replacement action was created as a corrective action to the 2007 switch failure.

The inspectors reviewed Exelon's PCM template, component classification and maintenance strategy for these D/P switches. The inspectors determined that these switches have been appropriately classified per Exelon's maintenance strategy and that a PM for the replacement of the critical CS switches has been addressed in the corrective action program by a recent action item in March 2011 (IR 1192536-01).

The inspectors determined that although there have been a few failures of Barton D/P switches since 2007, Exelon has appropriately addressed the extent of condition and overall maintenance strategies for both the critical and non-critical D/P switch population.

.4 Annual Sample: Review of the Operator Workaround Program

a. Inspection Scope

The inspectors reviewed the cumulative effects of the existing operator workarounds, operator burdens, existing operator aids and disabled alarms, and open main control room deficiencies to identify any effect on emergency operating procedure operator actions, and any impact on possible initiating events and mitigating systems. The inspectors evaluated whether station personnel had identified, assessed, and reviewed operator workarounds as specified in Exelon procedure OP-AA-102-103, "Operator Work-Around Program," Revision 3, and OP-AA-102-103-1001, "Operator Burden and Plant Significant Decision Impact Assessment Program," Revision 4.

The inspectors reviewed Exelon's process to identify, prioritize and resolve main control room distractions to minimize operator burdens. The inspectors reviewed the system used to track these operator workarounds and recent Exelon self assessments of the program. The inspectors also toured the control room and discussed the current operator workarounds with the operators to ensure the items were being addressed on a schedule consistent with their relative safety significance.

b. Findings and Observations

No findings were identified.

The inspectors determined that the issues reviewed did not adversely affect the capability of the operators to implement abnormal or emergency operating procedures. The inspectors also verified that Exelon entered operator workarounds and burdens into the CAP at an appropriate threshold and planned or implemented corrective actions commensurate with their safety significance.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 Plant Events (2 samples)

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in Inspection Manual Chapter (IMC) 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Exelon made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Exelon's follow-up actions related to the events to assure that Exelon implemented appropriate corrective actions commensurate with their safety significance.

- Unit 1 manual scram due to loss of recirculation pumps on April 19, 2012
- Unit 2 aborted reactor startup on June 3, 2012 (2F47) due to unplanned subcriticality

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 05000353/2011-003-01: Condition Prohibited By Technical Specifications Due to Inoperable Reactor Core Isolation Cooling System.

Revision 01 to the LER was issued on June 22, 2012, to correct an omission in the event description and analysis regarding a brief period when the HPCI system was inoperable for testing during the same time period when RCIC was inoperable. Revision 00 to the LER was closed in NRC Inspection Report 05000352, 353/2011004. No new issues were identified by Revision 01 to the LER. This LER is closed.

4OA5 Other Activities

(Discussed) NCV 05000352, 353/2012002-01: Failure to Make a 10 CFR 50.72(b)(2)(xi) Notification.

The NCV was written for failure to make a required notification to the NRC when an event related to the health and safety of the public and protection of the environment occurred, and notifications to other government agencies were made. Specifically, offsite organizations, including the Governor's office and various congressional offices,

as well as other state and local representatives received communications from Exelon regarding a Limerick Generating Station inadvertent radioactive release and its potential environmental impacts. Based on further review of background material for 10 CFR 50.72, the Analysis documentation is being revised as shown below to better reflect the intent of the regulation.

Analysis. This performance deficiency was evaluated using the traditional enforcement process since the failure to make a required report could adversely impact the NRC's ability to carry out its regulatory mission. The NRC has an obligation to inform the public about issues within the NRC's purview that potentially affect or raise a concern about public health and safety or protection of the environment. Thus, the NRC needs accurate and timely information regarding such situations, and the NRC should be aware of information that is available to other government agencies. It is important to note that the licensee in this case did inform the NRC resident inspectors of the release within a day of the event (after having reported it to state government officials). However, this informal communication to inspectors onsite does not constitute a formal notification. Although the circumstances of this issue were mitigated by the fact that the radiological consequences of the inadvertent release were minor and the fact that the licensee satisfied the objective of the voluntary NEI initiative by reporting it to State officials, the inspectors determined that this finding met the criteria for disposition as a security level IV NCV, per Section 6.9(d)(9) of the NRC's Enforcement Policy.

Because this violation involves the traditional enforcement process with no underlying technical violation that would be considered more than minor in accordance with IMC 0612, a cross-cutting aspect is not assigned to this violation.

4OA6 Meetings, Including Exit

On July 30, 2012, the inspectors presented the inspection results to Mr. P. Gardner, Plant Manager, and other members of the Limerick staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

Enclosure

SUPPLEMENTARY INFORMATION**KEY POINTS OF CONTACT**Licensee Personnel

T. Dougherty, Site Vice President
 P. Gardner, Plant Manager
 C. Rich, Director of Operations
 D. Doran, Director of Engineering
 R. Kreider, Director of Maintenance
 P. Colgan, Director of Work Management
 C. Gerdes, Security Manager
 R. Dickinson, Manager, Regulatory Assurance
 K. Kemper, Manager, Nuclear Oversight
 D. Merchant, Radiation Protection Manager
 M. Gillin, Sr. Manager, Engineering Systems
 M. Dirado, Manager, Engineering Programs
 M. Bonifanti, Manager, ECCS Systems
 L. Harding, Regulatory Assurance Engineer
 R. Rhode, Licensed Operator Requalification Training Supervisor
 G. Ludlum, Training Director
 R. Ruffe, Operations Training Manager
 B. Hennigan, Peach Bottom Operations Training Manager

Other:

M. Murphy, Inspector, Commonwealth of Pennsylvania

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpened/Closed

05000352, 353/2012003-01	NCV	Failure to Conduct Timely Corrective Actions to Replace Age Degraded Relays (Section IR12)
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Open

None

Closed

05000353/2011-003-01	LER	Condition Prohibited By Technical Specifications Due to Inoperable Reactor Core Isolation Cooling System (Section 4OA3.2)
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Discussed

05000352, 353/2012002-01 NCV Failure to Make a 10 CFR 50.72(b)(2)(xi)
Notification

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

E-5, Grid Emergency, Revision 20
OP-AA-108-107, Switchyard Control, Revision 2
OP-AA-108-107-1001, Station Response to Grid Capacity Conditions, Revision 4
OP-AA-108-107-1002, Interface Procedure between Exelon Energy Delivery (COMED/PECO)
and Exelon Generation (Nuclear Power) for Transmission Operations, Revision 6
WC-AA-8000, Interface Procedure between Exelon Energy Delivery (COMED/PECO) and
Exelon Generation (Nuclear Power) for Construction and Maintenance Activities,
Revision 5

Miscellaneous

Exelon 60-Day Response to Generic Letter 2006-002, dated April 3, 2006

Section 1R04: Equipment Alignment

Procedures

S78.1.B, Aligning the Control Room HVAC Isolation and Emergency Fresh Air Supply System
for Automatic Operation, Revision 8
0S78.1.B (COL), Equipment Alignment for Control Room HVAC Isolation and Emergency Fresh
Air Supply, Revision 10
2S49.1.A (COL), Valve Alignment to Assure Availability of the RCIC System, Revision 13
2S51.1.A (COL-3), Equipment Alignment for Automatic Operation of the RHR System in the
LPCI Mode – Subsystem 'C', Revision 4

Section 1R04: Complete Risk Important System Walkdowns

Miscellaneous

2S51.1.A (COL-1), Equipment Alignment for Automatic Operation of the RHR System in the
LPCI Mode – 'A' Subsystem, Revision 18

Section 1R05: Fire Protection

Issue Reports

930283 1351161

Procedures

SE-8, Fire, Revision 44
F-A-324, Unit 1 Class 1E Battery Room 324, Revision 8
F-A-336, 13 kV Switchgear Area Room 336, Revision 13
F-R-376, Unit 2 Safeguard System Isolation Valve Room 376, Revision 8

F-R-370, Unit 2 Safeguard System Access Area Room 370, Revision 11

Miscellaneous

CC-LG-201, Hazard Barrier Control Program, Revision 3

Calculation, NPB-030 – Unit 1 Steam Vent Area's, Volumes and Flow Paths, May 31, 1991
(NPB-058 – Unit 2)

Section 1R11: Licensed Operator Regualification Program

ARs/Issue Reports

011115041, Fuel Bundle Contacted Core Spray Inspection Submarine

011117854, During performance of Refueling Bridge Surveillance Testing the Dummy Fuel
Bundle Contacted a Spent Fuel Bundle

01382401, AFI out of NRC 71111.11B Inspection of LSRO Program

01382419, LSRO Program Enhancements from NRC 71111.11B Inspection

01382435, Results of LSRO Annual Operating and Biennial Written Exams

Procedures

TQ-AA-150, Operator Training Programs, Revision 5

TQ-AA-152, LSRO Training Program, Revision 2

TQ-AA-201, Examination Security and Administration, Revision 15

ON-120, Fuel Handling Problems, Revision 22

ON-124, Fuel Floor and Fuel Handling Problems – Procedure, Revision 14

A53.0.A, Normal Makeup/Response to Low Level in Fuel Storage Pool or Reactor Well

Examinations

PBAPS 2010 LSRO NRC Comprehensive Written Exam

PBAPS 2010 LSRO NRC Comprehensive Remediation Written Exam

Limerick 2012 LSRO NRC Comprehensive Written Exam

Job Performance Measure Number: NLSROJPM2045

Job Performance Measure Number: NLSROJPM2047

Job Performance Measure Number: NLSROJPM2056

Job Performance Measure Number: NLSROJPM2057

Job Performance Measure Number: NLSROJPM2065

Miscellaneous

Senior Reactor Operator – Limited Regualification Training 2011- 2012 Long Range Training
Plan

Simulator Exercise Guide, LLORSEG-8020, Emergency Preparedness Site Drill #1, Revision 0

Section 1R12: Maintenance Effectiveness

Issue Reports

642617	1045832	1321695	1341696
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Procedures

ER-AA-310, Implementation of the Maintenance Rule, Revision 8

ER-AA-310-1003, Maintenance Rule – Performance Criteria Selection, Revision 3

M-095-002, LGS 250 VDC Westinghouse MCU Maintenance, Revision 5

ST-6-055-200-2, HPCI Valve Test, Revision 53

Miscellaneous

A1769221
 C0239830
 NRC Information Notice 88-88: Degradation of Westinghouse Relays
 PM 396318

Section 1R13: Maintenance Risk Assessments and Emergent Work ControlIssue Reports

1367881	1368359	1368786	1368992	1370045
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Procedures

OP-AA-108-117, Protected Equipment Program, Revision 2
 S51.1.A, Set Up of RHR System for Automatic Operation in LPCI Mode, Revision 51
 S51.5.C, RHR Shutdown Cooling Piping Flushes, Revision 35
 ST-6-051-203-2, C Loop RHR Cold Shutdown Valve Test, Revision 8
 ST-2-051-624-1, Operational Leakage – High/Low Pressure Interface – Valve Leakage Monitor
 Shutdown Cooling from ‘B’ Recirculation Loop Functional Test (PISH-51-2N657), Revision 3

Section 1R15: Operability EvaluationsIssue Reports

671679	1242289	1353319	1353426	1354079	1366529
1366549	1366956	1368365	1374862	1376347	

Procedures

S06.0.A, Unit 2 Manual Adjustment of Reactor Feed Pump Minimum Recirculation Flow,
 Revision 4
 ST-2-051-404-2, ECCS – LPCI Keep Fill System Injection Line ‘A’ Calibration (LSL-51-210A),
 Revision 4
 Alarm Response Card ARC-MCR-213-F3
 2A RHR Pump Discharge Hi Lo Pressure, Revision 1
 OP-AA-108-115, Operability Determinations, Revision 11
 OP-AA-108-115-1002, Supplemental Considerations for On-Swift Immediate Operability
 Determinations, Revision 2

Miscellaneous

UFSAR Section 5.4, Component and Subsystem Design

Section 1R19: Post-Maintenance TestingIssue Reports

839237	1206538	1222234	1335086	1337961	1352818
1359672	1363514	1371395	1371437	1371788	1374862
1381792					

Procedures

RT-6-049-331-1, RCIC Overspeed Trip Test, Revision 5
 ST-2-051-106-2, Division II RHR (LPCI) Logic System Functional Test, Revision 9

ST-2-088-320-0, Remote Shutdown System ESW and RHRSW Operability Test, Revision 17
 ST-6-001-765-2, Main Turbine Control Valve Exercise and RPS Functional Test OPCON 1,2,
 Revision 44
 ST-6-049-230-1, RCIC Pump, Valve and Flow Test, Revision 76

Miscellaneous

C0240325

ECR 08-00245, Revision 0

ECR 11-00098, Revision 3

Maintenance Rule Scope and Performance Monitoring, 12 – RHRSW

Maintenance Rule Scope and Performance Monitoring, 88 – Remote Shutdown Panel

M-C-701-015, Main Turbine Control Valve Internal Assembly Overhaul, Revision 8

Work Order R1154196, EDG D24 Forward Drop Test

Section 1R20: Refueling and Other Outage Activities

Issue Reports

303586	459212	1206715	1331834	1351827	1366529
1366549	1366956	1368365	1368834		

Procedures

ER-AA-330-001, ASME Section XI Pressure Testing, Revision 10

ER-AA-330-009, ASME Section XI Repair/Replacement Program, Revision 6

M-041-001, Main Steam Isolation Valve Air Cylinder and Oil Dashpot Maintenance, Revision 20

ST-4-041-470-2, Cyclic Test of Main Steam Safety Relief Valve Solenoid and Air Operator
 Assemblies, Revision 4

Miscellaneous

C0238326

C0242616

Exelon Nuclear Memorandum, Notification of ASME Code Leakage Test with the Core Critical
 (Li2M45), May 22, 2012

Temporary Change 1-12-0334-2 to Main Steam Relief Valves Test, May 22, 2012

Section 1R22: Surveillance Testing

Issue Reports

1357014

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Procedures

EP-AA-1008, "Radiological Emergency Plan Annex for Limerick Generating Station,"
 Revisions 21, 22, 23

EP-AA-112-200, "TSC Activation and Operation," Revision 8

EP-AA-112-400, "Emergency Operations Facility Activation and Operation," Revision 11

Section 4OA1: Performance Indicator Verification

Issue Reports

1313652

Section 40A2: Problem Identification and ResolutionIssue Reports

651751 1192536 1363858

ProceduresST-2-051-404-2, ECCS – LPCI Keep Filled System Injection Line A Calibration (LSL-051-201A),
Revision 4Miscellaneous

A1858093

C0242785

Maintenance Strategy: LG-2-051-I-S-LSL-051-210A, 05/10/2012

LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agency wide Documents Access and Management System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CREFAS	Control Room Emergency Fresh Air System
DC MOV	Direct Current Motor Operated Valve
D/P	Differential Pressure
EACE	Equipment Apparent Cause Evaluation
EDG	Emergency Diesel Generator
ESW	Emergency Service Water
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
IR	Issue Report
kV	Kilo-Volt
LER	Licensee Event Report
LSRO	Limited Senior Reactor Operator
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PM	Preventive Maintenance
RCIC	Reactor Core Isolation
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
SDP	Significance Determination Process
SL	Security Level
SSC	Structure, System, or Component
UFSAR	Updated Final Safety Analysis Report