December 30, 2005

Mr. Christopher M. Crane
President and CNO
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way KSA 3-E
Kennett Square, PA 19348

SUBJECT: LIMERICK GENERATING STATION - NRC EVALUATED EMERGENCY PREPAREDNESS EXERCISE INSPECTION REPORT 05000352/2005009, 05000353/2005009

Dear Mr. Crane:

On November 18, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of your full-scale biennial Emergency Preparedness exercise that occurred at your Limerick Generating Station, Units 1 and 2 on November 15, 2005. The enclosed inspection report documents the inspection results, which were discussed with Mr. R. DiGregorio, Site Vice President, and other members of your staff during an exit meeting held on November 18, 2005.

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 procedures, observed activities associated with the exercise and interviewed personnel.

This report documents one NRC-identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating it as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the non-cited violation 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 the Limerick facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response if any will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room). Should you have any questions, please contact Mr. Raymond K. Lorson at (610) 337-5282.

Sincerely,

/RA/

Raymond K. Lorson, Chief
Plant Support Section 1
Division of Reactor Safety

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

Enclosure: Inspection Report 05000352/2005005, 05000353/2005005
w/Attachment: Supplemental Information

cc w/encl:
Chief Operating Officer, Exelon Generation Company, LLC
Site Vice President - Limerick Generating Station
Plant Manager, Limerick Generating Station
Regulatory Assurance Manager - Limerick
Senior Vice President - Nuclear Services
Vice President - Mid-Atlantic Operations
Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director - Licensing and Regulatory Affairs, Exelon Generation Company, LLC
Manager, Licensing - Limerick Generating Station
Vice President, General Counsel and Secretary
Associate General Counsel, Exelon Generation Company
Correspondence Control Desk
Director, Bureau of Radiation Protection, PA Department of Environmental Protection
J. Johnsrud, National Energy Committee
Chairman, Board of Supervisors of Limerick Township
J. Bradley Fewell, Assistant General Counsel, Exelon Nuclear
D. Hammons, Chief, Tech Hazards Branch and RAC Chair FEMA Region III P. G. Arcuri,
Acting Regional Director, FEMA, Region III

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response if any will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room). Should you have any questions, please contact Mr. Raymond K. Lorson at (610) 337-5282.

Sincerely,

/RA/

Raymond K. Lorson, Chief
Plant Support Section 1
Division of Reactor Safety

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

Enclosure: Inspection Report 05000352/2005005, 05000353/2005005
w/Attachment: Supplemental Information

cc w/encl:
Chief Operating Officer, Exelon Generation Company, LLC
Site Vice President - Limerick Generating Station
Plant Manager, Limerick Generating Station
Regulatory Assurance Manager - Limerick
Senior Vice President - Nuclear Services
Vice President - Mid-Atlantic Operations
Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director - Licensing and Regulatory Affairs, Exelon Generation Company, LLC
Manager, Licensing - Limerick Generating Station
Vice President, General Counsel and Secretary
Associate General Counsel, Exelon Generation Company
Correspondence Control Desk
Director, Bureau of Radiation Protection, PA Department of Environmental Protection
J. Johnsrud, National Energy Committee
Chairman, Board of Supervisors of Limerick Township
J. Bradley Fewell, Assistant General Counsel, Exelon Nuclear
D. Hammons, Chief, Tech Hazards Branch and RAC Chair FEMA Region III P. G. Arcuri,
Acting Regional Director, FEMA, Region III

Distribution w/encl: **(VIA E-MAIL)**
S. Collins, RA
M. Dapas, DRA
S. Lee, RI OEDO
D. Roberts, NRR
G. Wunder, PM, NRR
J. Trapp, DRP
A. Burritt, DRP
S. Hansell, DRP - Senior Resident Inspector
C. Colantoni, DRP - Resident Inspector
K. Heater - Resident OA
Region I Docket Room (with concurrences)
ROPreports@nrc.gov
R. Kahler, NSIR/EPD
S. LaVie, NSIR/EPD
A. Blough, DRS
M. Gamberoni, DRS
R. Lorson, DRS
N. McNamara, DRS

DOCUMENT NAME: E:\Filenet\ML060030016.wpd

SISP Review Complete: RKL
After declaring this document "An Official Agency Record" it **will** be released to the Public.
To receive a copy of this document, indicate in the box: "**C**" = Copy without attachment/enclosure "**E**" = Copy with attachment/enclosure "**N**" = No copy

OFFICE	RI/DRS		RI/DRS		RI/DRP		RI/DRS/SRA			
NAME	NMcNamara***/DS for***		RKLorson***/RKL***		JMTrapp***/JMT***		WLSchmidt***/CGC for***			
DATE	12/28/05		12/28/05		12/29/05		12/29/05			

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.	50-352, 50-353
License Nos.	NPF-39, NPF-85
Report Nos.	05000352/2005009 and 05000353/2005009
Licensee:	Exelon Generation Company, LLC
Facility:	Limerick Generating Station, Units 1 and 2
Location:	Evergreen and Sanatoga Roads Sanatoga, PA 19464
Dates:	November 15 -18, 2005
Inspectors:	N. McNamara, Team Leader P. Presby, Operator Licensing Examiner S. Hansell, Senior Resident Inspector, Limerick C. Colantoni, Resident Inspector, Limerick J. McFadden, Health Physicist
Observers:	L. Casey, Reactor Engineer G. Ottenberg, Reactor Engineer R. Cureton, Reactor Engineer
Approved by:	Raymond K. Lorson, Chief Plant Support Branch 1 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000352/2005009, 05000353/2005009; 11/15/2005 - 11/18/2005; Limerick Generating Station; Emergency Preparedness Exercise.

The report covered an inspection by three regional inspectors and two resident inspectors. One Green finding, which was a non-cited violation (NCV), was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after 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 3, dated July 2000.

A. NRC-Identified and Self Revealing Findings

Cornerstone: Emergency Preparedness

- Green. A non-cited violation (NCV) of 10 CFR 50.47(b)(14) and Appendix E.IV.F.2.g. was identified, in that Exelon's exercise evaluators did not identify an emergency response organization (ERO) performance issue that had an apparent effect of unnecessarily prolonging a simulated radiological release to the environment. An alternative approach that could have resulted in a lesser radiological material release was available, but was not implemented.

  This finding is greater than minor because it affects the response organization performance (exercises) attribute of the EP cornerstone. Failure to identify an exercise performance issue impacts the EP cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the public during an actual emergency. Specifically, exercise critique items provide the licensee opportunities to implement actions to improve the ERO response to an actual event. This finding is of very low safety significance because it was identified during an exercise with simulated activities and is associated with the failure to identify a problem associated with a non-risk significant planning standard. The cause of this finding is related to the cross-cutting element problem identification and resolution. (Section 1EP1)

B. Licensee-Identified Findings

None

1. REACTOR SAFETY

Cornerstone: Emergency Preparedness (EP)

1EP1 Exercise Evaluation (1 Sample)

a. Inspection Scope

Prior to the exercise, the inspectors reviewed the exercise's objectives and scenario to ensure that the major elements of the licensee's emergency plan (E-Plan) would be properly tested as required by 10 CFR 40.47(b)(14).

The exercise evaluation focused on the ERO's performance to implement accident mitigation strategies in the following response facilities:

- Control Room Simulator (CRS)
- Technical Support Center (TSC)
- Operations Support Center (OSC)
- Emergency Operations Facility (EOF)
- Joint News Center (JNC)

The inspectors assessed the ERO's capability to implement the risk-significant activities of emergency classification, notification and protective action decision making. The assessment also included: (1) operator recognition and response to abnormal plant conditions; (2) activation and transfer of responsibilities between facilities; (3) conduct of facility operations and related equipment; (4) internal communications; (5) interfaces with offsite officials; and (6) overall implementation of the licensee's E-Plan and it's implementing procedures.

The inspectors attended Exelon's exercise critique on November 18, 2005 to assess the licensee's self-assessment of the exercise participants' performance for responding to a simulated radiological event. The licensee's critique's results were then compared with the NRC's independent observations and assessments to ensure the licensee was capable of identifying exercise deficiencies.

b. Findings

Introduction. The NRC identified a Green NCV because Exelon exercise evaluators did not identify an ERO exercise performance issue that had the apparent effect of unnecessarily prolonging a simulated radiological release to the environment.

Description. The exercise scenario presented plant conditions with fuel damage and failure of one of the main steam lines to isolate on a main steam tunnel high temperature condition. This provided an additional path to release contaminated steam outside of the primary containment. Emergency Operating Procedure (EOP) T-103 directs operators to ensure that the main steam line isolation valves (MSIVs) are closed when radiation levels reach three times the normal full power background levels. During the exercise, the NRC observed operators using the main turbine bypass valves (BPVs), which bypass the turbine stop and control valves, to de-pressurize the reactor through the unisolated main steam line after the fuel damaged occurred. This action appeared inconsistent with the intent of T-103 and created a pathway for contaminated steam to

bypass the turbine, enter the main condenser, and be released to the environment through the north vent stack. An alternative method would have been to use the safety relief valves (SRVs) to de-pressurize the reactor to the primary containment. Use of the SRVs would have minimized the release of radiation outside of the primary and secondary containments. The inspectors did not identify any constraints to preclude use of this alternative depressurization method.

Neither the Exelon CRS or TSC exercise evaluators questioned whether the use of the turbine bypass valve was the optimal depressurization strategy. In addition, the evaluators did not consider whether the reactor de-pressurization with SRVs would have resulted in a reduced radiological release to the environment. These issues were not captured in the licensee's post exercise critique.

Analysis. A non-cited violation (NCV) of 10 CFR 50.47(b)(14) and Appendix E.IV.F.2.g. was identified, in that Exelon's exercise evaluators did not identify an ERO performance issue that had an apparent effect of unnecessarily prolonging the simulated radiological release to the environment. Alternative approaches that could have resulted in a lesser radiological material release were available but were not considered or implemented by the ERO in a timely manner. The inspectors also determined that this finding was indicative of a cross-cutting issue in the problem identification and resolution area.

This finding is greater than minor because it affects the response organization performance (exercises) attribute of the EP cornerstone. Failure to critique an exercise performance issue impacts the EP cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the public during an actual emergency. Specifically, Exelon exercise evaluators did not identify an ERO performance issue that had the apparent effect of unnecessarily prolonging a radiological release to the environment. The purpose of identifying exercise performance issues is to implement corrective actions prior to the issues adversely impacting response during an actual event.

The inspectors reviewed this finding using IMC 0609, Appendix B, "EP SDP, Sheet 1, Failure to Comply." This finding was determined to be of very low safety significance (Green) because the finding was identified during an exercise with simulated activities and is associated with the failure to identify a problem associated with a non-risk significant planning standard.

Enforcement. Title 10 to CFR 50.47(b)(14) states, in part, "that periodic exercises will be conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are corrected." In addition, 10 CFR Part 50, Appendix E, Section IV.F.2.g., "Training," states, in part, that all training, including exercises, shall provide for formal critiques in order to identify weak or deficient areas that need correction. Contrary to the above, during a biennial exercise conducted on November 15, 2005, Exelon exercise evaluators did not identify an ERO performance issue that had the apparent effect of unnecessarily prolonging a radiological release to the environment. The ERO did not discuss the option to use SRVs to perform a normal reactor de-pressurization to the primary containment which could have minimized the radiological release to the environment. Since the violation was of very low safety significance (Green) and since Exelon entered the deficiency into their correction action program

(Condition Report No. 437320), this finding is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: **NCV 05000352,353/2005009-01, Failure to Critique Exercise Performance Deficiency**

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 - 1 Sample)

a. Inspection Scope (1 Sample)

During the period of August - November 2005, the NRC received changes made to Exelon's E-Plan in accordance with 10 CFR 50.54(q). Exelon determined the changes resulted in no decrease in effectiveness to the E-Plan and continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. A selected sample of E-Plan changes were reviewed in-office by the inspector. This review does not constitute approval of the changes and, as such, the changes and the associated 10 CFR 50.54(q) reviews are subject to future NRC inspection for determining if a decrease in effectiveness has occurred. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 4.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems (1 Sample)

a. Inspection Scope

The inspectors reviewed Exelon's critique findings as documented in drill and exercise reports from 2004 and 2005. These reviews were conducted to determine if significant performance trends exist and to determine the effectiveness of licensee corrective actions based upon ERO performance observed during this exercise. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 01. 10 CFR 50.47(b)(14); and Appendix E IV.F.2.g were used as reference criteria.

b. Findings and Observations

No findings of significance were identified.

40A6 Meetings, including Exit

On November 18, 2005, the inspectors presented the inspection results to Mr. R. DeGregorio and other Exelon staff. The inspectors confirmed that no proprietary information was provided or examined during the inspection.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Hunter, EP Manager
R. Mandik, EP Coordinator

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000352,0500353/2005009-01	NCV	Failure to Critique Exercise Performance Deficiency

Discussed

None

LIST OF DOCUMENTS REVIEWED

Exelon Standardized Emergency Plan
Limerick Annex Emergency Plan
Emergency Plan Implementing Procedures
Limerick April 2004 Training Drill Series Evaluation Report
Limerick December 2004 Drill Findings and Observation Report
Limerick May-June 2005 Training Drill Series Evaluation Report, Rev. 1
Limerick September 2005 Training Drill Evaluation Report, Rev. 1

LIST OF ACRONYMS

BPV	Bypass Valve
CRS	Control Room Simulator
EP	Emergency Preparedness
E-Plan	Emergency Plan
EOF	Emergency Operations Facility
EOP	Emergency Operating Procedure
ERO	Emergency Response Organization
IMC	Inspection Manual Chapter
JNC	Joint News Center
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OSC	Operations Support Center
PARS	Publicly Available Records

RO	Response Organization
SDP	Significant Determination Process
SRV	Safety Relief Valves
TSC	Technical Support Center