June 12, 2001

Mr. Oliver D. Kingsley, President
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT RE: AUTOMATIC DEPRESSURIZATION SYSTEM SURVEILLANCE REQUIREMENTS (TAC NOS. MB0027 AND MB0028)

Dear Mr. Kingsley:

The Commission has issued the enclosed Amendment No. 152 to Facility Operating License No. NPF-39 and Amendment No. 116 to Facility Operating License No. NPF-85 for the Limerick Generating Station (LGS), Units 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated July 31, 2000.

On January 12, 2001, the licenses held by PECO Energy Company (PECO) for Limerick 1 and 2, were transferred to Exelon Generation Company, LLC. By letter dated January 30, 2001, Exelon requested that the U.S. Nuclear Regulatory Commission continue to review and act upon all requests before the Commission which had been submitted by PECO.

These amendments revise LGS Units 1 and 2 TSs by replacing the existing Automatic Depressurization System (ADS) TS Surveillance Requirement (SR) 4.5.1.d.1, a 31-day channel functional test of the accumulator backup compressed gas system low-pressure alarm system, with a 31-day verification of the ADS accumulator gas supply header pressure. The amendments also relocate existing TS SRs 4.5.1.d.1 and 4.5.1.d.2.c, a 24-month channel calibration of the accumulator backup compressed gas system low-pressure alarm system, to the Technical Requirements Manual.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Christopher Gratton, Sr. Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-352 and 50-353

Enclosures: 1. Amendment No. 152 to License No. NPF-39
2. Amendment No. 116 to License No. NPF-85
3. Safety Evaluation

cc w/encls: See next page

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DATE	5/23/01	5/23/01	5/24/01	5/30/01	6/7/01

Official Record Copy

Limerick Generating Station, Units 1 & 2

cc:

Mr. Edward Cullen
Vice President & General Counsel
Exelon Generation Company, LLC
300 Exelon Way
Kennett Square, PA 19348

Manager-Limerick Licensing
Exelon Generation Company, LLC
Nuclear Group Headquarters
Correspondence Control
P.O. Box 160
Kennett Square, PA 19348

Mr. William Levis, Site Vice President
Limerick Generating Station
P.O. Box 2300
Sanatoga, PA 19464

Mr. R. Braun
Plant Manager
Limerick Generating Station
P.O. Box 2300
Sanatoga, PA 19464

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
Limerick Generating Station
P.O. Box 596
Pottstown, PA 19464

Chairman
Board of Supervisors
of Limerick Township
646 West Ridge Pike
Linfield, PA 19468

Chief-Division of Nuclear Safety
PA Dept. of Environmental Resources
P.O. Box 8469
Harrisburg, PA 17105-8469

Library
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Dr. Judith Johnsrud
National Energy Committee
Sierra Club
433 Orlando Avenue
State College, PA 16803

Mr. Jeffrey A. Benjamin
Licensing - Vice President
Exelon Corporation
1400 Opus Place, Suite 900
Downers Grove, IL 60515

Mr. James A. Hutton
Director-Licensing
Exelon Generation Company, LLC
Nuclear Group Headquarters
Correspondence Control
P. O. Box 160
Kennett Square, PA 19348

Correspondence Control Desk
Exelon Generation Company, LLC
200 Exelon Way, KSA 1-N-1
Kennett Square, PA 19348

Mr. John Skolds
Chief Operating Officer
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

Mr. William Bohlke
Senior Vice President, Nuclear Services
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

Limerick Generating Station, Units 1 & 2

cc:

Mr. John Cotton
Senior Vice President, Operations Support
Exelon Generation Company, LLC
1400 Opus Place, Suite 900
Downers Grove, IL 60515

Mr. Joseph Hagan
Senior Vice President
Mid-Atlantic Regional Operating Group
Exelon Generation Company, LLC
200 Exelon Way, KSA 3-N
Kennett Square, PA 19348

Ms. K. Gallogly
Regulatory Assurance Manager
Limerick Generating Station
P.O. Box 2300
Sanatoga, PA 19464

Mr. Oliver D. Kingsley, President
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

EXELON GENERATION COMPANY

DOCKET NO. 50-352

LIMERICK GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.152
License No. NPF-39

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by PECO Energy Company (the then-licensee), adopted by Exelon Generation Company, LLC, dated July 31, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-39 is hereby amended to read as follows:

   Technical Specifications

   The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 152 , are hereby incorporated into this license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the
Technical Specifications

Date of Issuance: June 12, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 152

FACILITY OPERATING LICENSE NO. NPF-39

DOCKET NO. 50-352

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3/4 5-5	3/4 5-5
B 3/4 5-2	B 3/4 5-2
---	B 3/4 5-2a

EXELON GENERATION COMPANY

DOCKET NO. 50-353

LIMERICK GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 116
License No. NPF-85

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by PECO Energy Company (the then-licensee), adopted by Exelon Generation Company, LLC, dated July 31, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-85 is hereby amended to read as follows:

   Technical Specifications

   The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 116 , are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the
Technical Specifications

Date of Issuance: June 12, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 116

FACILITY OPERATING LICENSE NO. NPF-85

DOCKET NO. 50-353

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3/4 5-5	3/4 5-5
B 3/4 5-2	B 3/4 5-2
---	B 3/4 5-2a

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 152 AND 116 TO FACILITY OPERATING

LICENSE NOS. NPF-39 AND NPF-85

EXELON GENERATION COMPANY

LIMERICK GENERATING STATION, UNITS 1 AND 2

DOCKET NOS. 50-352 AND 50-353

1.0 INTRODUCTION

By letter dated July 31, 2000, PECO Energy Company (PECO) submitted a request for changes to the Limerick Generating Station (LGS), Units 1 and 2, Technical Specifications (TSs). The requested changes would replace the existing automatic depressurization system (ADS) TS Surveillance Requirement (SR) 4.5.1.d.1, a 31-day channel functional test of the accumulator backup compressed gas system low-pressure alarm system, with a 31-day verification of the ADS accumulator gas supply header pressure. The licensee proposed to move existing TS SRs 4.5.1.d.1 and 4.5.1.d.2.c, a 24-month channel calibration of the accumulator backup compressed gas system low-pressure alarm system, to the Technical Requirements Manual (TRM).

On January 12, 2001, the licenses held by PECO for Limerick 1 and 2, were transferred to Exelon Generation Company, LLC (Exelon). By letter dated January 30, 2001, Exelon requested that the U.S. Nuclear Regulatory Commission (NRC) continue to review and act upon all requests before the Commission which had been submitted by PECO.

2.0 BACKGROUND

Fundamentally, approval of the license amendment request (LAR) will have two effects: (1) the equipment used for determining TS OPERABILITY of key safety components will be changed and (2) this change will eliminate the chance of an unnecessary forced reactor shutdown in 12 hours that would result from failure of that equipment under the current TS.

The LAR does not change the design or operation of any safety or nonsafety-related systems or components previously reviewed by the NRC staff and found to be acceptable. However, the LAR proposes replacing the emergency core cooling system (ECCS) ADS TS SR 4.5.1.d.1, with a new SR as an alternate means of assuring the OPERABILITY of the ADS. The new SR, which verifies that the ADS accumulator gas supply header pressure is $\geq$ 90 psig at least once every 31 days, will replace the existing SR which requires a Channel Functional Test of the accumulator backup compressed gas system low-pressure alarm system at least once every 31 days.

In determining the acceptability of this element of the LAR, we used the following requirements, guidance, and information:

(1) The definition of OPERABILITY in the LGS TSs,

(2) The definition of SR in Section 50.36(c)(3) of Title 10 of the *Code of Federal Regulations*,

(3) The description of the design-basis function of the ADS valves as discussed in LGS TSs bases,

(4) The description of the ADS and its air supply system as provided in the LAR; and

(5) Precedent as contained in NUREG-1433, Revision 1, “Standard Technical Specifications, General Electric Plants, BWR/4," dated April 1995.

The proposed alternative means of assuring operability of the ADS valves will eliminate the licensee’s reliance on the accumulator backup compressed gas system low-pressure alarm system for meeting Limiting Condition for Operation (LCO) 3.5.1.d. It follows that any SRs for that LCO using the accumulator backup compressed gas system low-pressure alarm system can also be deleted. Thus, in addition to the change in SR 4.5.1.d.1, the LAR proposed to delete ECCS ADS TS SR 4.5.1.d.2.c, which requires a channel calibration of the accumulator backup compressed gas system low-pressure alarm system at least once every 24 months.

As a result, the ongoing operation and maintenance of the accumulator backup compressed gas system low-pressure alarm system would no longer be required by the LGS TSs. Instead, the LAR would relocate the existing SR 4.5.1.d.1, “Channel Functional Test,” and SR 4.5.1.d.2.c, “Channel Calibration,” to the TRM.

The TRM is a licensee-controlled document that can be changed without the NRC staff review if the change meets the requirements of 10 CFR 50.59. In deciding whether an item can be removed from the TSs, the NRC staff evaluates the proposed changes using 10 CFR 50.36(c)(2) LCO, which identifies which equipment must be included in the TSs. If the accumulator backup compressed gas system low-pressure alarm system is not required for ADS valve operability, and if the system does not perform another intended function that requires it to remain in the TSs, then, the equipment can be relocated to the TRM.

Finally, the LAR includes conforming changes to the TS Bases. We reviewed the bases and found them consistent with the proposed TS changes.

3.0 EVALUATION

The ADS at LGS requires the operation of five of the 14 main steam safety/relief valves (MSRVs). These five MSRVs are referred to as the ADS valves. All of the pilot-operated MSRVs are self-actuated for automatic overpressure protection of the reactor vessel and attached piping, and can also be remotely actuated via main control room hand switches. The five ADS valves can also be remotely actuated automatically or manually via the ADS control logic. The remote actuation of the MSRVs requires the application of an external

compressed gas supply to the MSRV actuators. This gas pressure is normally supplied by the primary containment instrument gas (PCIG) system.

The PCIG system consists of two nonsafety-related compressor packages with separate receiver tanks and two separate supply loops. Each of these loops split into two separate headers outside of containment and each header has a separate containment penetration. One header from each loop is designed as a separate safety-related and seismic Category 1 supply to the appropriate ADS valves (three ADS valves are supplied from the A loop header and two ADS valves are supplied from the B loop header). The other two headers are nonsafety-related and nonseismic Category 1 and both of these headers are each hard piped inside of containment to the nine non-ADS MSRVs. These headers are also hard piped to the ADS valves such that either the 'A' PCIG loop or the 'B' PCIG loop can provide the gas supply to each of the five ADS valves when either of the PCIG compressors and/or receiver tanks are adequately pressurized. The instrument air system and the station compressed air system can also be aligned to the PCIG system as backup pneumatic sources.

The PCIG system also includes a backup compressed gas system that consists of two additional safety-related backup headers in the reactor enclosure with each header connected to three standard 2200 psi nitrogen bottles with regulators. Each backup header is connected to one of the two safety-related PCIG supply headers outside of containment and is normally isolated from the PCIG supply header by a normally closed solenoid valve (fail open). When the normal PCIG supply header pressure drops to 85 psig, the solenoid valve on the backup header opens and another solenoid valve on the PCIG supply header closes and isolates the safety-related portion of the PCIG supply header and the safety-related backup header from the nonsafety-related portion of the PCIG supply header. This re-alignment connects the backup supply bottles to the ADS valves and accumulators inside containment. Each set of three bottles provides sufficient gas volume to assure up to 100 actuations of the ADS valves on that header. This satisfies the short-term need for ADS control (i.e., 6 hours through day 7 of an accident) without any operator action outside of the control room. During this time period, additional bottles or a compressor can be connected to the safety-related external connection (outside of the reactor enclosure) which is provided at the end of one backup supply header. This external connection will allow for long-term safety-related makeup for up to 100 days, if required.

The backup compressed gas system includes a low-pressure alarm system. This alarm function is provided by pressure switches installed on the 'A' and 'B' ADS accumulator backup compressed gas supply headers. These switches initiate the low-pressure alarms in the main control room when the gas pressure in either of the backup supply headers decreases below 90 psig. These alarms are for indication only and do not impact the operation, capability or operability of the ADS accumulators since a loss of pressure in the backup header does not indicate a loss of pressure in the ADS accumulator supply header or the ADS accumulators due to the normally closed solenoid valve in the backup header.

The current ECCS TS SRs link a channel functional test and calibration of the ADS accumulator backup compressed gas low-pressure alarm system to the TS operability of the ADS. Since there is no TS allowed out-of-service time for the alarm system, a failure of the alarm test requires entering a 12-hour shutdown ACTION statement for two or more ADS valves inoperable (current TS LCO 3.5.1.d.2). However, a plant shutdown based on a failure of this alarm is not appropriate. As indicated previously, the alarm is for indication only and does not

impact the operation, capability or operability of the ADS accumulators. The design basis for ADS, as described in the ECCS TS Bases 3/4.5.1, is to depressurize the reactor vessel so that flow from the low-pressure core cooling systems can enter the core in time to limit fuel cladding temperature to less than 2200 °F. A loss of pressure in the backup header does not indicate a loss of pressure in the ADS accumulator supply header or the ADS accumulators due to the normally closed solenoid valve in the backup header. Without a loss of pressure in the ADS accumulators, the ADS valves are fully capable of meeting the ADS depressurization function described in the TS Bases. Therefore, the appropriate parameter to monitor is the ADS accumulator gas supply header pressure.

The licensee has proposed the following changes and clarifications to the TSs:

- Replace ECCS ADS TS SR 4.5.1.d.1, which requires performing a Channel Functional Test of the accumulator backup compressed gas system low-pressure alarm system at least once per 31 days, with a new TS SR 4.5.1.d.1, which requires verifying that the ADS accumulator gas supply header pressure is $\geq$ 90 psig at least once-per-31 days. This new surveillance requirement ensures that the ADS valves are capable of performing the ADS depressurization function described in ECCS TS Bases 3/4.5.1.

- Delete ECCS ADS TS SR 4.5.1.d.2.c, performing a Channel Calibration at least once-per-24 months of the accumulator backup compressed gas system low-pressure alarm system.

- Add to TS Bases 3/4.5.1 and 3/4.5.2, the bases for the new SR verification of the ADS accumulator gas supply header pressure.

- Relocate the existing SR 4.5.1.d.1 (Channel Functional Test) and SR 4.5.1.d.2.c (Channel Calibration) to the TRM.

The current LGS ECCS TS SRs for the ADS requires the licensee to perform a Channel Functional Test at least once-per-31 days and a Channel Calibration at least once-per-24 months on the ADS accumulator backup compressed gas system low-pressure alarm system. This alarm function is provided by pressure switches installed on the ‘A’ and ‘B’ ADS accumulator backup compressed gas supply headers. These switches initiate the low-pressure alarms in the main control room when the gas pressure in either of the backup supply headers decreases to below 90 psig. These alarms are for indication only and do not impact the operation, capability or operability of the ADS accumulators. A loss of pressure in the backup header does not indicate a loss of pressure in the ADS accumulator supply header or the ADS accumulators due to the normally closed solenoid valve. Without a loss of pressure in the ADS accumulators, the ADS valves are fully capable of meeting the ADS depressurization function described in the ECCS TS Bases 3/4.5.1. The proposed TS verification that the pressure in the ADS accumulator compressed gas header is at least equal to the ADS accumulator’s minimum required charging pressure of 90 psig, is a direct indication that the pressure in the ADS accumulators meets the design basis and that the ADS valves are fully capable of performing the TS required ADS depressurization function for the initial 6 hours of an event. The proposed surveillance frequency is in accordance with NUREG-1433, Rev. 1, Surveillance Requirement 3.5.1.3, and allows the equipment to meet its intended function as stated in the LGS definition of OPERABILITY. Therefore, the staff finds this change acceptable.

Including the channel functional test and channel calibration requirements for the ADS long-term backup gas supply system alarm system in the TRM will ensure that the long-term gas supply system continues to meet its design requirements specified in the Updated Final Safety Analysis Report and will be governed by the requirements stated 10 CFR Part 50.59. In addition, relocating this SR into the TRM will help to eliminate potential confusion regarding TS operability of the ADS valves if the long-term gas supply system is unavailable. Allowed outage times and appropriate actions for when portions of the long-term gas supply to the ADS valves become unavailable are also being included in the TRM. In deciding whether an item can be removed from the TSs, the NRC staff evaluates the proposed changes using 10 CFR Part 50.36(c)(2), "Limiting conditions for operation," which specifies what equipment must be included in the TSs. The accumulator backup compressed gas system low-pressure alarm system is not required for ADS valve operability, according to the LGS definition of OPERABILITY, does not meet the requirements of 10 CFR Part 50.36(c)(2) for inclusion in the TSs, and does not serve any other purpose that requires it to remain in the TSs. The relocation of SR 4.5.1.d.1 and SR 4.5.1.d.2.c to the TRM is, therefore, acceptable.

The proposed change was evaluated by the licensee in relation to the LGS Probabilistic Safety Assessment (PSA). The licensee concluded that the change has no impact on core damage frequency since the ADS depressurization function is not impacted by the proposed change. In addition, these changes as stated above are consistent with the requirements in NUREG-1433 and have been adopted by several other plants recently during Improved Technical Specification (ITS) conversions.

4.0 SUMMARY

The NRC finds that the proposed changes will allow safe operation with these modifications to the ADS TS surveillance requirement. The NRC staff also finds that the proposed changes are consistent with the previously approved ITS conversions to NUREG-1433, Revision 1. The NRC staff, therefore, concludes that the proposed TS changes are acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments change a surveillance requirement. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (65 FR 62389). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: J. Foster

Date: June 12, 2001