

April 23, 2001

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: Limerick Generating Station, Units 1 and 2
Technical Specifications Change Request No. 01-05-0

Dear Sir/Madam:

Exelon Generation Company, LLC, is submitting Technical Specifications (TS) Change Request No. 01-05-0, in accordance with 10 CFR 50.90, requesting an amendment to the TS (Appendix A) of Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2. This proposed TS Change Request will delete the Loose Parts Monitoring System (LPMS) and the associated Technical Specifications and Bases currently contained in the LGS, Units 1 and 2 Technical Specifications. Information supporting this TS Change Request is contained in Attachment 1 to this letter, and the proposed marked up TS pages and final TS pages are contained in Attachments 2 and 3, respectively. This information is being submitted under affirmation, and the required affidavit is enclosed.

We request your approval of this change on or before September 28, 2001 in order to not exceed the current surveillance interval for the system. Additionally, there are no commitments contained within this letter.

We request that, if approved, the change become effective within 30 days of issuance.

ADD

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A copy of this TS Change Request, including the reasoned analysis about a no significant hazards consideration, is being provided to the appropriate Pennsylvania State official in accordance with the requirements of 10 CFR 50.91(b)(1).

If you have any questions, please do not hesitate to contact us.

Very truly yours,

A handwritten signature in cursive script, appearing to read "D. L. Hutton / For".

James A. Hutton
Director - Licensing

Attachments; Affidavit

cc: H. J. Miller, Administrator, Region 1, USNRC
A. L. Burritt, USNRC Senior Resident Inspector, LGS
R. R. Janati, PA Bureau of Radiological Protection

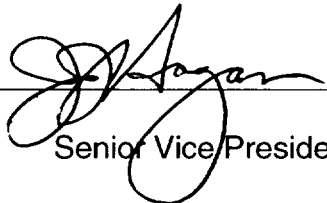
COMMONWEALTH OF PENNSYLVANIA :

: ss.

COUNTY OF CHESTER :

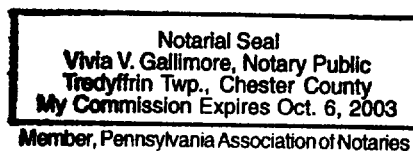
J. J. Hagan, being first duly sworn, deposes and says:

That he is Senior Vice President of Exelon Generation Company, LLC; the Applicant herein; that he has read the attached Technical Specifications (TS) Change Request No. 01-05-0 for the Loose Parts Monitoring System, for Limerick Generating Station Facility Operating License Nos. NPF-39 and NPF-85, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.


Senior Vice President

Subscribed and sworn to
before me this 23rd day
of April 2001.


Notary Public



ATTACHMENT 1

LIMERICK GENERATING STATION
UNITS 1 and 2

DOCKET NOS. 50-352
50-353
LICENSE NOS. NPF-39
NPF-85

TECHNICAL SPECIFICATIONS CHANGE REQUEST
NO. 01-05-0

LOOSE PARTS MONITORING SYSTEM

Supporting Information for Change - 5 Pages

Introduction

Exelon Generation Company, LLC, Licensee under Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, requests that the Technical Specifications (TS) contained in Appendix A to the Operating Licenses be amended to delete the Loose Parts Monitoring System (LPMS) and the associated Technical Specifications and Bases currently contained in the LGS, Units 1 and 2 Technical Specifications. The proposed marked up TS pages and final TS pages are contained in Attachments 2 and 3, respectively.

This Technical Specifications Change Request provides a discussion and description of the proposed changes, a safety assessment of the proposed changes, information supporting a finding of No Significant Hazards Consideration, and information supporting an Environmental Assessment.

Discussion and Description of the Proposed Changes

This Technical Specifications (TS) Change Request will delete the Loose Parts Monitoring System (LPMS) and the associated Technical Specifications and Bases currently contained in the Limerick Generating Station (LGS), Units 1 and 2 Technical Specifications. The deletion of the LPMS has been evaluated in the Boiling Water Reactor Owners' Group (BWROG) Topical Report NEDC-32975P, "Regulatory Relaxation for BWR Loose Parts Monitoring Systems". In a Safety Evaluation Report (SER) dated January 25, 2001 (Letter from S. A. Richards (NRC) to J. M. Kenny (Chairman, BWR Owners Group)) the NRC approved this Topical Report. The NRC staff determined that the Topical Report is acceptable for referencing in licensing applications to the extent specified under the limitations in the report and in the associated Safety Evaluation Report.

The proposed TS changes to LGS, Units 1 and 2, are consistent with the Topical Report and the NRC Safety Evaluation to the extent specified and under the limitations delineated within these documents.

Safety Assessment

As discussed in Section 4.4.6.1, of the Limerick Generating Station (LGS), Units 1 and 2 Updated Final Safety Analysis Report (UFSAR), the Loose Parts Monitoring System (LPMS) was designed in conformance with Regulatory Guide 1.133 ("Loose-Parts Detection Program for the Primary System of Light-Water-Cooled Reactors," Revision 1, May 1981), to detect and alarm for loose parts in the reactor coolant system. Loose parts are metallic objects that can be physically moved by the reactor flow. A secondary function of the system is to assist the operators in locating the detected loose parts. The LPMS is used for information purposes only and is not a safety-related system. Review of the UFSAR indicates that the operators do not rely solely on this system or information provided by this system for the performance of any safety-related action. This system has no trip function. This system is not relied upon by other systems for input or data. Upon approval the LGS, Units 1 and 2, LPMS will no longer be required at LGS, Units 1 and 2.

The BWROG Topical Report NEDC-32975P has evaluated the extensive operating experience of installed Loose Parts Monitoring Systems and compared it to the expected benefits of this system as documented by the NRC in Regulatory Guide 1.133. Results of this comparison have determined that although loose parts have been detected on a few occasions, the BWROG has

not been able to identify any case where a BWR was shut down to investigate a Loose Parts Monitor alarm signal. In addition, no Loose Parts Monitoring System has detected a failed or weakened safety-related component.

As discussed in the Topical Report, BWRs typically employ aggressive foreign material exclusion (FME) programs and underwater camera inspections during refueling outages to assure that loose parts are not allowed to accumulate in the reactor vessel. Limerick Generating Station, Units 1 and 2, has programs in place that implement FME controls and utilize video inspection techniques for inspections and for retrieval of FME objects. Experience has also shown that components inadvertently left in the reactor system (or transported to the reactor system) are retained in low flow regions of the reactor vessel. Small metallic filings or similar debris could contribute to fuel cladding damage, but this class of debris would not be detected via Loose Parts Monitoring Systems. It is noted that LGS, Units 1 and 2, have recently installed new fuel assemblies that incorporate debris filters into the fuel support pieces to provide an extra layer of defense against this type of fuel cladding damage. New fuel assemblies constitute only a portion of the fuel currently loaded in each unit.

Based on review of operating experience, the BWROG has determined that loose parts that have been detected by Loose Parts Monitors and loose parts found by visual inspections do not have a significant potential to:

- Cause damage to or malfunction of primary system components
- Pose a serious threat of partial flow blockage leading to fuel cladding failure
- Cause control rod jamming
- Increase accumulation of radioactive crud in the primary system
- Increase exposure for extensive inspections and structural repairs, and thereby not assuring that occupational exposure is as low as is reasonably achievable (ALARA)

Based on the evaluation of BWR plant survey results, the BWROG has concluded that the above potential detrimental effects identified in REGULATORY GUIDE 1.133 have not occurred at the 15 U.S. BWRs with Loose Parts Monitoring Systems and for the 19 U.S. BWRs, which have been licensed without requirements for Loose Parts Monitors. Based on BWR operating experience in excess of 500 reactor-years, the BWROG has concluded that LPMS have no safety significant benefit at BWRs.

The BWROG has also considered the effect of removing the Loose Parts Monitoring Systems from a safety risk perspective. None of the BWR Probabilistic Risk Assessments (PRAs) rely upon or address Loose Parts Monitoring Systems and, therefore, quantitative risk assessments cannot be made. The risk insights based on several hundred years of plant experience indicate that the existence or non-existence of Loose Parts Monitoring Systems has had no effect on core damage or large early release frequency (LERF).

The BWROG has determined that work performed by EPRI (EPRI TR-105707, "BWR Vessel and Internals Project, Safety Assessment of BWR Reactor Internals, BWRVIP-06", October 1995) also supports the BWROG position that BWR Loose Parts Monitoring Systems have no safety benefit and can, therefore, be removed. This EPRI Topical Report evaluated the consequences of loose parts generated in the reactor vessel or transported to the reactor vessel. The report stated that loose parts represent a safety concern if they result in: (a) the potential for flow blockage and consequential fuel damage; (b) the potential for interference with

control rod operation; or, (c) the potential for corrosion and chemical reaction with other reactor internals.

The NRC Safety Evaluation Report concurs with EPRI's analysis of loose parts transport and consequences in the reactor annulus region, upper plenum and lower vessel region. In the upper plenum evaluation, the EPRI report points out that a large loose part would be gravity-dominated and would most likely fall into the core region. Fuel bundle flow blockage could occur if a loose part falls on the core top guide assembly or on the fuel bundle upper tie plate grid. If core flow is affected because a sufficient number of fuel bundle flows are blocked, a power reduction would be observed and the plant would be brought to safe shutdown. If the impact on core flow or power cannot be observed, some fuel damage could occur which would be detectable by the offgas system. In addition, because the LPMS sensors are located on the exterior surfaces of the vessel, the system may not have the sensitivity to detect the impact of loose parts in the upper plenum and in the core. The EPRI report also points out that small loose parts or debris from the lower plenum will probably not impede CRD operation due to the difficult flow path. Small loose parts and debris could enter the CRD during refueling, but the LPMS will not likely detect this class of debris.

The NRC Safety Evaluation Report found that operating history does not indicate that the LPMS did detect weakened or degraded safety related components as well as damage to components due to loose parts inadvertently left during maintenance or refueling. The LPMS is not reliable or sensitive enough to provide the safety benefits envisioned by Regulatory Guide 1.133. Loose parts can be detected by the normal plant process and monitoring systems and also through visual inspections. Also, operating history does not show a higher incidence or occurrence of damage to safety-related components in plants that have no LPMS installed. The safety benefits of the LPMS do not appear to be commensurate with the cost of maintenance and the associated radiation exposure for plant personnel.

The LPMS has high repair and system replacement costs, and maintenance performed on the system leads to higher radiation exposure to plant personnel. The estimated annual cost to maintain the LPMS at Limerick is \$57,000. In addition, if it is determined that this system needs to be replaced within the next few years, the cost for this modification is estimated to be approximately \$500,000.

Information Supporting a Finding of No Significant Hazards Consideration

It is concluded that the proposed changes to the LGS, Units 1 and 2, TS do not involve a Significant Hazards Consideration. In support of this determination, an evaluation of the three (3) standards set forth in 10 CFR 50.92 is provided below.

1. The proposed TS changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

This Technical Specifications (TS) Change Request will delete the Loose Parts Monitoring System and the associated Technical Specifications and Bases currently contained in the Limerick Generating Station (LGS), Units 1 and 2, Technical Specifications. The Loose Parts Monitoring System (LPMS) is not an accident initiating system. The LPMS was designed in conformance with Regulatory Guide 1.133 ("Loose-Parts Detection Program for the Primary System of Light-Water-Cooled Reactors," Revision 1, May 1981), to detect and alarm for loose parts in the reactor coolant system. A secondary function of the system is to assist the operators in locating the detected loose parts. The LPMS is used for information

purposes only and is not a safety-related system. The operators do not rely solely on this system or information provided by this system for the performance of any safety-related action. Review of the Updated Final Safety Analysis (UFSAR) indicates that this system is not relied upon by other systems for input or data. This is a monitoring system that does not perform any automatic or control functions, and is not relied upon for any accident or transient evaluation. The removal of the LPMS from operation will not increase the need for operator intervention or increase operator burden to support any system used to mitigate an accident under normal or off normal conditions. Therefore, the proposed changes will not significantly increase the probability of an accident previously evaluated.

Topical Report NEDC-32975P ("Regulatory Relaxation for BWR Loose Parts Monitoring Systems") has demonstrated that it is acceptable to remove the LPMS from the plant. In the NRC's Safety Evaluation (Letter from S. A. Richards (NRC) to J. M. Kenny (Chairman, Boiling Water Reactor Owners' Group)), the staff found that the Topical Report is acceptable for referencing in licensing applications.

The removal of the LPMS will not change or degrade the physical barriers or systems designed to contain radiation, and will have no effect on the on-site or off-site radiological conditions. Therefore, the proposed TS changes do not involve a significant increase in the consequences of an accident previously evaluated.

2. The proposed TS changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

This TS Change Request will delete the Loose Parts Monitoring System and the associated Technical Specifications and Bases currently contained in the LGS, Units 1 and 2, Technical Specifications. Removal of this system will not create a new mode of operation of the plant. The LPMS is a nonsafety-related monitoring system. The proposed changes do not create a system-level failure mode different than those that already exist. In addition, there are no operation or failure modes of the LPMS that are accident initiators. Therefore, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed TS changes do not involve a significant reduction in a margin of safety.

This TS Change Request does not affect any safety limits or analytical limits. Also there are no changes to accident or transient core thermal hydraulic conditions, or fuel or reactor coolant boundary design limits, as a result of these proposed changes. The BWROG Topical Report has concluded that it is acceptable to eliminate the LPMS requirements from the plant. Additionally, the NRC staff has determined that the Topical Report is acceptable for referencing in licensing applications to the extent specified under the limitations in the report and in the associated Safety Evaluation Report. These proposed changes are consistent with the GE Topical Report and the NRC Safety Evaluation to the extent specified under the limitations delineated within these documents. Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Information Supporting an Environmental Assessment

An Environmental Assessment is not required for the changes proposed by this TS Change Request because the requested changes to the Limerick Generating Station (LGS), Units 1 and 2, TS conform to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 51.22 (c)(9). The requested changes will have no impact on the environment. The proposed changes do not involve a Significant Hazards Consideration as discussed in the preceding section. The proposed changes do not involve a significant change in the types, or a significant increase in the amounts, of any effluents that may be released offsite. In addition, the proposed changes do not involve a significant increase in individual or cumulative occupational radiation exposure.

Conclusion

We have concluded that the proposed changes to the LGS, Units 1 and 2, TS do not involve a Significant Hazards Consideration.

ATTACHMENT 2

LIMERICK GENERATING STATION UNITS 1 and 2

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50-353

LICENSE NOS. NPF-39
NPF-85

TECHNICAL SPECIFICATIONS CHANGE REQUEST
NO. 01-05-0

LOOSE PARTS MONITORING SYSTEM

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INSTRUMENTATION

LOOSE-PART DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.10 The loose-part detection system shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

- a. With one or more loose-part detection system channels inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.10 Each channel of the loose-part detection system shall be demonstrated OPERABLE by performance of a:

- a. CHANNEL CHECK at least once per 24 hours,
- b. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
- c. CHANNEL CALIBRATION at least once per 24 months.

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INSTRUMENTATION

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3/4.3.7.10 LOOSE PART DETECTION SYSTEM

The OPERABILITY of the loose-part detection system ensures that sufficient capability is available to detect loose metallic parts in the primary system and avoid or mitigate damage to primary system components. The allowable out-of-service times and surveillance requirements are consistent with the recommendations of Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors," May 1981.

3/4.3.7.11 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE ODCM.

3/4.3.7.12 OFFGAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures and noble gases in the off-gas system.

3/4.3.8 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE UFSAR.

3/4.3.9 FEEDWATER/MAIN TURBINE TRIP SYSTEM ACTUATION INSTRUMENTATION

The feedwater/main turbine trip system actuation instrumentation is provided to initiate action of the feedwater system/main turbine trip system in the event of failure of feedwater controller under maximum demand.

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INSTRUMENTATION

LOOSE-PART DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.10 The loose-part detection system shall be OPERABLE.

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SURVEILLANCE REQUIREMENTS

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ATTACHMENT 3

LIMERICK GENERATING STATION
UNITS 1 and 2

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TECHNICAL SPECIFICATIONS CHANGE REQUEST
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LOOSE PARTS MONITORING SYSTEM

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BASES

3/4.3.7.10 (Deleted)

3/4.3.7.11 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE ODCM.

3/4.3.7.12 OFFGAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures and noble gases in the off-gas system.

3/4.3.8 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE UFSAR.

3/4.3.9 FEEDWATER/MAIN TURBINE TRIP SYSTEM ACTUATION INSTRUMENTATION

The feedwater/main turbine trip system actuation instrumentation is provided to initiate action of the feedwater system/main turbine trip system in the event of failure of feedwater controller under maximum demand.

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INSTRUMENTATION

BASES

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3/4.3.7.11 (Deleted) - INFORMATION FROM THIS SECTION RELOCATED TO THE ODCM.

3/4.3.7.12 OFFGAS MONITORING INSTRUMENTATION

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3/4.3.9 FEEDWATER/MAIN TURBINE TRIP SYSTEM ACTUATION INSTRUMENTATION

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