

10 CFR 50.90

April 4, 2006

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Limerick Generating Station, Units 1 and 2
Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: Response to Request for Additional Information
License Amendment Request - Proposed Technical Specifications Change to
Relocate Surveillance Test Intervals to a Licensee-Controlled Program (Risk-
Informed Initiative 5b)

References: (1) Letter from M. P. Gallagher, Exelon Generation Company, LLC, to U. S.
Nuclear Regulatory Commission, dated June 11, 2004.

(2) Letter from T. R. Tjader, U. S. Nuclear Regulatory Commission, to B. Bradley,
Nuclear Energy Institute, and M. P. Gallagher, Exelon Generation Company,
LLC, dated October 20, 2005.

In Reference 1, Exelon Generation Company, LLC (Exelon), requested a change to the Technical Specifications (TS), Appendix A, of Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively. The proposed change relocates the surveillance test intervals (STIs) of various TS surveillance requirements from the TS to a new licensee program, the Surveillance Frequency Control Program, which is being added to the Administrative Controls section of TS. This license amendment request (LAR) was submitted as a pilot in support of the Boiling Water Reactor Owners' Group (BWROG) Risk-Informed Initiative 5b, "Relocate Surveillance Test Intervals to Licensee Control."

In Reference 2, the NRC requested additional information concerning the LGS LAR. The attachment to this letter restates the NRC questions and provides Exelon's response to each question.

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Exelon has concluded that the information provided in this response does not impact the conclusions of the: (1) Technical Analysis, (2) No Significant Hazards Consideration under the standards set forth in 10 CFR 50.92(c), or (3) Environmental Consideration as provided in the original submittal (Reference 1).

There are no regulatory commitments contained within this letter.

If you have any questions or require additional information, please contact Glenn Stewart at 610-765-5529.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 4th day of April 2006.

Respectfully,

Pamela B. Cowan

Pamela B. Cowan
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Response to Request for Additional Information

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|-----|---|--------------|
| cc: | Regional Administrator - NRC Region I | w/attachment |
| | NRC Senior Resident Inspector - Limerick Generating Station | " |
| | NRC Project Manager, NRR - Limerick Generating Station | " |
| | NRC Project Manager - BWROG | " |
| | NRC Project Manager - RITS Task Force | " |
| | Director, Bureau of Radiation Protection - Pennsylvania Department of Environmental Protection | " |

ATTACHMENT

Limerick Generating Station, Units 1 and 2 Docket Nos. 50-352 and 50-353

Proposed Technical Specifications Change to Relocate Surveillance Test Intervals to a Licensee-Controlled Program (Risk-Informed Initiative 5b)

Response to Request for Additional Information

In Reference 1, Exelon Generation Company, LLC (Exelon), requested a change to the Technical Specifications (TS), Appendix A, of Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2, respectively. The proposed change relocates the surveillance test intervals (STIs) of various TS surveillance requirements from the TS to a new licensee program, the Surveillance Frequency Control Program (SFCP), which is being added to the Administrative Controls section of TS. This license amendment request (LAR) was submitted as a pilot in support of the Boiling Water Reactor Owners' Group (BWROG) Risk-Informed Initiative 5b, "Relocate Surveillance Test Intervals to Licensee Control."

In Reference 2, the NRC requested additional information concerning the LGS LAR. Each NRC question is restated below followed by our response.

Question 1.

The licensee in their application Section 4.2, Key Safety Principles, indicates that Regulatory Guide 1.174 identifies five key safety principles (a) to be met for all risk-informed applications and (b) to be explicitly addressed in risk-informed plant program change applications. The first of the five key safety principles (required to be explicitly addressed) states: "The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change."

10 CFR 50.36(c)(3) states: "Surveillance requirements. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

The licensee in their application indicates that surveillance test intervals (STIs) for surveillance requirements (SRs) are being relocated to a licensee-controlled program. SRs will remain as part of the technical specifications (TS). Thus, the proposed relocation of STIs to a licensee-controlled program meets the first of the five key safety principles.

In addition to the provisions of 10 CFR 50.36(c)(3) defined above, SRs (including STIs) are required to meet 10 CFR 50.36(b). 10 CFR 50.36(b) states: "...The technical specifications will be derived from the analyses and evaluation included in the safety analysis report...." Analyses and evaluation in safety analysis reports relating to electrical systems includes compliance with the requirements of Criterion 17 of 10 CFR Part 50, Appendix A (GDC 17). GDC 17 in part states: "...The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure..." Specifically, GDC 17 requires sufficient testability. Describe how the proposed change meets the sufficient testability requirement of GDC 17.

Response

The proposed change will not affect compliance with GDC 17. GDC 17 describes requirements for the design of onsite electric power supplies. The proposed change does not alter the design of the onsite electric power supplies. The proposed change involves relocating existing surveillance test intervals from TS to a licensee-controlled program, i.e., the Surveillance Frequency Control Program (SFCP). The surveillance requirements themselves will remain in the TS. Therefore, the surveillance test methods and acceptance criteria used to verify that the onsite electric power supplies are operating as designed are not changed. The proposed SFCP provides a method by which future changes to surveillance test intervals would be made, but no surveillance test intervals are proposed to be changed at this time. Thus, there would be no effect on the independence, redundancy, or testability of the onsite electric power supplies.

Similarly, compliance with 10 CFR 50.36 is not affected, based on initial discussions with NRC staff and Office of General Counsel (OGC). The Nuclear Energy Institute (NEI) Risk Informed Technical Specifications Task Force (RITSTF) requested explicit confirmation from OGC in this regard.

Question 2.

A note included as part of Section 1 of Attachment 1 to the application states:

NOTE: various TS surveillance requirements, including in some cases their associated STIs, were established based on commitments to Regulatory Guides, or based on implementation of NRC-approved Licensing Topical Reports. Within the licensee-controlled program, the surveillance requirements themselves will not be changed and will continue to be performed in accordance with the applicable Regulatory Guide or Topical Report, as appropriate; however, associated STIs may be modified in accordance with the licensee-controlled program.

For cases where the associated STIs were established based on commitments documented in the plant's safety analysis, clarify the extent these STIs can be changed by the licensee-controlled program without prior NRC approval.

Response

As discussed in draft NEI 04-10, commitment control will be in accordance with the NRC endorsed industry guidance contained in NEI 99-04, "Guidelines for Managing NRC Commitment Changes". This guidance document was discussed in NRC Regulatory Information Summary (RIS) 00-17, which states, in part:

"The staff has reviewed NEI 99-04 and finds that it offers an acceptable way to manage regulatory commitments. Definitions and other guidance in NEI 99-04 are consistent with the principles described in Commission papers and the staff's internal guidance. The NRC encourages licensees to use the NEI guidance or similar administrative controls to ensure that regulatory commitments are implemented and that changes to the regulatory commitments are evaluated and, when appropriate, reported to the NRC."

For example, the NEI 99-04 commitment evaluation process asks if there is a codified change process for the commitments. Commitments to Regulatory Guides and Topical Reports are typically included in the UFSAR or TS Bases, changes to both of which are governed under 10

CFR 50.59. As such, NEI 99-04 acknowledges that such commitments are changed by applying the provisions of 10 CFR 50.59 to determine if a change requiring prior NRC approval exists. If the 10 CFR 50.59 review determines that a change requiring prior NRC approval does not exist, licensees may make the change and provide a description of the change to the NRC annually or coincident with filing FSAR updates. Otherwise, prior NRC review and approval of the change is required. Once it is determined whether the change to the commitment may be made under 10 CFR 50.59, evaluation of the surveillance test interval change would continue in accordance with the draft NEI 04-10 methodology.

The draft NEI 04-10 methodology was revised to include a review of the impact of station commitments on changes to surveillance test intervals as a result of the lessons learned from performing example STI change evaluations using the methodology in support of the pilot license amendment request for Limerick. (Reference 1)

Question 3.

The 5b process conveys that the licensing commitment for testing will be changed to demonstrate the condition of equipment and thus the future operability of electrical equipment. Currently protective devices such as fuses or breakers are tested to demonstrate that they do not trip safety equipment when the safety equipment is functionally tested. Describe how each electrical circuit component such as fuses, breakers, and cables will be tested to demonstrate their condition so that future operability will be assured. Describe how the current licensing basis for testing of electrical equipment will be changed to assure future operability of electrical equipment.

Response

The proposed change will not affect the testing methods for electrical circuit components. The surveillance test interval may be changed under the SFCP using NRC approved guidance, but changes to testing methods or acceptance criteria specified in TS surveillance requirements would continue to require NRC review and approval. The main purpose of the proposed methodology is to assure that any revised test intervals will continue to effectively demonstrate future operability of the component or system. This is accomplished through the multifaceted process described in draft NEI 04-10. This process addresses the decisionmaking principles of NRC Regulatory Guide 1.174, and uses an integrated decisionmaking panel, which includes plant personnel with experience in the areas of instrumentation, testing, and operability determination.

Question 4.

Regulatory Guide (RG) 1.118, "Periodic Testing of Electric Power and Protection Systems," Rev. 3, endorses, with comments, IEEE 338-1987, "Criteria for the Periodic Surveillance Testing of Nuclear Power Generating Station Safety Systems." IEEE 338-1987, Section 6.5, Test Intervals, requires that changes to test intervals shall conform to the requirements of Subpart 6.5.1. This subpart requires that test intervals consider manufacturer's recommendations, historical experience, equipment qualification failure data in addition to plant and system operational goals. Please confirm your conformance to IEEE-338-1987 and RG 1.118 for your proposed Surveillance Frequency Control Program.

Response

Changes to surveillance test intervals that are controlled under the SFCP are evaluated in accordance with Section 4.0 of draft NEI 04-10. Step 7 of Section 4.0 of the methodology identifies the qualitative considerations that need to be addressed under the SFCP. Following are the considerations included (Step 7 also indicates that these are not limiting):

- Surveillance test and performance history of the components and system associated with the STI extension
- Uncertainty associated with the quantitative process
- The impact of systems not quantified using the internal events PRA
- The impact of systems for which LERF results are not available
- The impact of systems for which external events and shutdown PRA are not available
- Past industry and plant-specific experience with the functions affected by the proposed changes
- Impact on defense-in-depth protection
- Vendor-specified maintenance frequency
- ASME and other code-specified test intervals
- Consideration of the impact of a SSC in an adverse or harsh environment
- Consideration of the benefits of detection at an early stage of potential mechanisms and degradations that can lead to common cause failures

ASME and other code-specified test intervals includes consideration of IEEE and other industry standards as well. Step 7 of draft NEI 04-10 was revised in Draft Rev. 3 (to be submitted separately by NEI) to make this clarification. Therefore, the scope of review required by Step 7 envelopes all the attributes identified under Question 4. As a result, no additional commitments to RG 1.118, Rev. 3 or IEEE Std. 338-1987 are required.

LGS is in conformance with IEEE Std. 338-1977 for testing of the electric power systems, as described in Section 8.1.6.1.21 of the UFSAR. However, this has no effect on the efficacy of the SFCP or the review to be performed, as described above.

Question 5.

Regulatory Guide 1.9, "Selection, Design, Qualification and Testing of Emergency Diesel Generator Units Used As Onsite Electric Power Systems for Nuclear Power Plants," Rev. 3, supersedes Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used As Onsite Electric Power Systems for Nuclear Power Plants," Rev. 3 of RG 1.9 endorses, with comments, IEEE 387-1984, "IEEE Standard Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations." (IEEE 387-1984 has since been superseded by IEEE 387-1995.) Please confirm your conformance to IEEE 387-1984 and RG 1.9 or identify and explain any exceptions taken. Note, the NRC has not endorsed IEEE 387-1995.

Response

Regulatory Guide 1.9, Revision 3, and IEEE-387-1984 present guidance criteria for the design and qualification of emergency diesel generators, as well as the scope and frequency of testing of these machines. The proposed change involves relocating existing surveillance test intervals from TS to a licensee-controlled program (i.e., the SFCP). The scope of testing is unchanged.

The design of the EDGs is unchanged. The design of the EDG system was evaluated during initial plant licensing, and is described in the plant UFSAR. This LAR does not affect any aspect of the design or qualification of the EDG system.

The frequency of periodic EDG surveillance testing is addressed in IEEE 387-1984, Section 6.5, "Periodic Tests," and in Section 2.2 of Regulatory Guide 1.9, Revision 3. Table 1 of the Regulatory Guide summarizes the recommended frequencies for each of the EDG tests in a convenient format. The frequencies of these tests – which are currently governed by the plant Technical Specifications – will be relocated to the SFCP. In the future, the actual frequency of performance of these tests may vary from IEEE 387-1984 or RG 1.9, Revision 3 as determined through the SFCP. The main purpose of the proposed methodology is to assure that any revised test intervals will continue to effectively demonstrate future operability of the component or system. This is accomplished through the multifaceted process described in draft NEI 04-10. This process addresses the decisionmaking principles of NRC Regulatory Guide 1.174, and uses an integrated decisionmaking panel, which includes plant personnel with experience in the areas of instrumentation, testing, and operability determination. Therefore, any future changes to EDG testing frequencies will continue to ensure EDG reliability and operability.

LGS is in conformance with IEEE Std. 387-1977 for periodic testing of the EDGs, as described in Section 8.1.6.1.20 of the UFSAR. However, this has no effect on the efficacy of the SFCP, as described above.

Question 6.

Surveillance 4.8.1.1.2.e list the diesel generator refueling outage surveillance tests performed during a refueling outage. Please confirm that the intervals for these tests will not change in the future if they are moved from the technical specifications.

Response

The SFCP does not exclude particular surveillance tests based solely on their current frequency or component type. As indicated previously in this response, the surveillance test interval may be changed under the SFCP using NRC approved guidance, but changes to testing methods or acceptance criteria specified in TS surveillance requirements would require NRC review and approval. The main purpose of the proposed methodology is to assure that any revised test intervals will continue to effectively demonstrate future operability of the component or system. This is accomplished through the multifaceted process described in draft NEI 04-10. This process addresses the decisionmaking principles of NRC Regulatory Guide 1.174, and uses an integrated decisionmaking panel, which includes plant personnel with experience in the areas of instrumentation, testing, and operability determination. As a result, although particular surveillances may not be excluded from the SFCP, changes to the surveillance test interval may be limited based on the results of the evaluation using the NEI 04-10 methodology as directed by the program.

For example, STI #4 described in Attachment 4 of Reference 1, involved using the draft NEI 04-10 methodology to evaluate extending the surveillance interval of the Loss of Coolant Accident (LOCA)/Loss of Offsite Power (LOOP) testing from 24 months to 48 months. The evaluation concluded that there are certain relays that are only exercised during the LOCA/LOOP test and current operating experience does not support a test interval longer than 24 months for exercising these particular relays. Although, based purely on the risk metrics, the methodology would allow an extension of up to two times the current surveillance test interval, the other

qualitative aspects of the methodology, e.g., reliability, defense-in-depth, etc., would not allow extension of the surveillance test interval at this time without the implementation of other additional changes, e.g., the development of alternative strategies for testing the affected relays or evaluation of additional industry failure rate data on the affected relays. As a result, the Integrated Decisionmaking Panel did not approve extending the surveillance test interval at this time. NOTE: This example is specific to LGS, and may or may not generically apply to the implementation of Risk-Informed Initiative 5b at other nuclear plants.

Question 7.

Surveillance 4.8.1.1.2.e.8, 24 hour Endurance Run. Please confirm that this load test is performed at a power factor (pf) of < 0.9 . If not, please indicate the load pf during this test and justify how the surveillance test demonstrates the capability of the DG to carry the post accident loading without overheating.

Response

The proposed change will not affect the testing methods for EDGs. The surveillance test interval may be changed under the SFCP using NRC approved guidance, but changes to testing methods or acceptance criteria specified in TS surveillance requirements would continue to require NRC review and approval. This question specifically addresses the method of testing the EDGs and does not address changes to the EDG surveillance test interval. Therefore, this question is not related to the changes proposed in Reference 1.

Question 8.

Table 4.8.1.1.2-1, Diesel Generator Test Schedule, provides the test frequency for accelerated testing of the diesel generators based upon the number of failures in the last 20 valid tests. Generic Letter 94-01, "Removal of Accelerated Testing and Special Reporting Requirements for Emergency Diesel Generators," recommended addressing diesel generator reliability through 10 CFR 50.65, (the maintenance rule.) Please confirm that the LGS diesel generator reliability is covered by the an appropriate programmatic application of the maintenance rule. (10 CFR 50.65)

Response

The EDG reliability at Limerick is covered by an appropriate programmatic application of the maintenance rule. Limerick is considering requesting removal of Table 4.8.1.1.2-1 from TS, consistent with the recommendations in Generic Letter 94-01, in a separate license amendment request.

Question 9.

Please explain how the licensee-controlled program will meet the reporting requirements of 10 CFR 50.72.

Response

Implementation of the SFCP does not change testing methods or acceptance criteria specified in TS surveillance requirements. The failure to meet the acceptance criteria for TS operability during surveillance testing would continue to require declaring the associated equipment inoperable and evaluating reportability in accordance with the requirements of 10 CFR 50.72 and 10 CFR 50.73, as appropriate.

The primary reportability issue related to implementation of the SFCP would be any operation or condition prohibited by TS due to a missed surveillance or late performance of a surveillance test. 10 CFR 50.73 requires reporting a condition prohibited by TS if surveillance testing indicates that equipment was not capable of performing its specified safety functions (and thus was inoperable) for a period of time longer than allowed by TS, i.e., the Limiting Condition for Operation (LCO) allowed outage time or completion time for restoration (10 CFR 50.72 does not have a corresponding requirement). However, 10 CFR 50.73 does not require reporting of a late surveillance test as long as the oversight that caused the late performance of the test is corrected, the test is performed, and the equipment is found to be capable of performing its specified safety functions.

NUREG-1022, "Event Reporting Guidelines, 10 CFR 50.72 and 50.73," Rev. 2, acknowledges that some plants have TS which allow a delay in declaring an LCO or TS requirements not met to allow time to perform the test before making such a declaration and taking other required actions. A Licensee Event Report (LER) would only be required if the test (once performed) indicates that equipment was not capable of performing its specified safety functions for a period of time longer than allowed by TS.

Implementation of the SFCP will not change how the reporting requirements of 10 CFR 50.72 or 50.73 are satisfied.

References:

1. Letter from M. P. Gallagher, Exelon Generation Company, LLC, to U.S. Nuclear Regulatory Commission, dated June 11, 2004.
2. Letter from T. R. Tjader, U.S. Nuclear Regulatory Commission, to B. Bradley, Nuclear Energy Institute, and M. P. Gallagher, Exelon Generation Company, LLC, dated October 20, 2005.