

August 13, 2007

MEMORANDUM TO: Harold K. Chernoff, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Peter Bamford, Project Manager/*ra*/
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: LIMERICK GENERATING STATION, UNIT NOS 1 AND 2 -
ELECTRONIC TRANSMISSION, DRAFT REQUEST FOR ADDITIONAL
INFORMATION REGARDING ONE TIME INTEGRATED LEAK RATE
INTERVAL EXTENSION FROM 10 TO 15 YEARS (TAC NOS. MD5198
AND MD5199)

The attached draft request for additional information (RAI) was sent by electronic transmission on August 2, 2007, to Mr. Thomas Loomis, at Exelon Generation Company, LLC (Exelon). This draft RAI was transmitted to facilitate the technical review being conducted by the Nuclear Regulatory Commission (NRC) staff and to support a conference call with Exelon in order to clarify certain items in the licensee's submittal. The draft RAI is related to Exelon's submittal dated February 20, 2007, regarding a request to extend the Containment type A Integrated Leak Rate Test interval for Limerick Generating Station, Units 1 and 2 from 10 to 15 years. The draft questions were sent to ensure that the questions were understandable, the regulatory basis for the questions was clear, and to determine if the information was previously docketed. Additionally, review of the draft RAI would allow Exelon to determine and agree upon a schedule to respond to the RAI. This memorandum and the attachment do not represent an NRC staff position.

Docket Nos. 50-352 and 50-353

Enclosure: As stated

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**via memorandum*

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DRAFT

REQUEST FOR ADDITIONAL INFORMATION
REGARDING TECHNICAL SPECIFICATION CHANGES FOR
TYPE A INTEGRATED LEAK RATE TEST INTERVAL EXTENSION
LIMERICK GENERATING STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-352 AND 50-353

By letter dated February 20, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML070530296), Exelon Generation Company, LLC, submitted a license amendment request (LAR) for Limerick Generating Station (LGS), Unit Nos. 1 and 2. The proposed amendment would provide a one-time extension of the containment Type A Integrated Leak Rate Test interval from 10 years to 15 years for each unit.

The Nuclear Regulatory Commission (NRC) Staff has been reviewing the submittal and has determined that additional information is needed to complete its review.

1. The approach used to assess the risk impact of the integrated leak rate test (ILRT) extension considered only internal events risk. As stated in Section 2.2.4 of Regulatory Guide 1.174, the risk-acceptance guidelines (in this case, for large early release frequency or LERF) are intended for comparison with a full-scope assessment risk assessment, including internal and external events. Consistent with this guidance, and to the extent supportable by the available risk models for Limerick Generating Station, provide an assessment of the impact of the requested change on Δ LERF and total LERF (based on the Nuclear Energy Institute Interim Guidance Methodology) when external events are included within the assessment.
2. In addition to extending the ILRT test interval from 10 to 15 years, the license amendment request would extend the drywell-to-suppression chamber bypass test (DWBT) interval to 15 years. The U.S. Nuclear Regulatory Commission has issued similar amendments to the operating licenses for Clinton, Susquehanna, and several other boiling-water reactor (BWR) plants. These interval extensions were based in part on a determination that the combined effect of both test interval extensions on risk was small. To provide insights into cumulative risk impacts, provide an assessment of the combined effect of the ILRT and DWBT interval extensions on risk (i.e., population dose, LERF, and conditional containment failure probability) similar to that provided for these other BWRs.
3. In Section 1.2, Background, last paragraph on page five of the risk impact assessment of your application you state, "Furthermore, NRC regulations 10 CFR 50.55a(b)(2)(ix)(E), require licensees to conduct visual inspections of the accessible areas of the interior of the containment three times every 10 years. These requirements will not be changed as a result of the extended ILRT interval."

Enclosure

Explain the relevance of this information, given that in your Attachment 1, Evaluation of Proposed Change, Reference (4) - U. S. Nuclear Regulatory Commission letter dated January 24, 2007, "Limerick Generation Station, Units 1 and 2 - Relief Requests 13R-01 For Alignment of Inservice Inspection and Containment Inservice Inspection (TAC NOS. MD2727 AND MD 2728)", you were approved to synchronize containment inspection programs in going from the ASME Code, Section XI, 1992 Edition through the 1992 Addenda to the 2001 Edition through the 2003 Addenda. Will LGS be applying Subsection IWE 1998 or later Edition throughout the requested ILRT interval? 10 CFR 50.55a(b)(2)(ix) reads:

- (ix) *"Examination of metal containments and the liners of concrete containments.* Licensees applying Subsection IWE, 1992 Edition with the 1992 Addenda, or the 1995 Edition with the 1996 Addenda, shall satisfy the requirements of paragraphs (b)(2)(ix)(A) through (b)(2)(ix)(E) of this section. Licensees applying Subsection IWE, 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, shall satisfy the requirements of paragraphs (b)(2)(ix)(A), (b)(2)(ix)(B), and (b)(2)(ix)(F) through (b)(2)(ix)(I) of this section."

4. In your LAR Attachment 1, Evaluation of Proposed Change, Section 4.2 Integrated Leak Rate History, on page three of 11 you provide historical ILRT results for each unit. Were there any changes in test or calculation methodology that might affect comparison of one test result to another for any of the tests for which results are listed? What were the corresponding combined Type B and Type C Test leakage rate totals, either in weight percent per day or volume/time with conversion factor to weight percent per day?
5. Since the ILRT, the local leak rate test (LLRT), and containment inservice inspection (CISI) program collectively ensure leak-tight integrity and structural integrity of the containment, the NRC staff requests the following information to complete the review of the LAR.
 - a. With reference to the fourth paragraph in Section 4.1 of Attachment 1 of the LAR, please indicate the current test intervals under Option B for the Type B and Type C LLRT. Please provide a schedule for the Type B and Type C tests on containment pressure-retaining boundaries that are or will be scheduled to be performed prior to and during the requested 5-year extension period.
 - b. Section 4.4, Containment Inspections, in Attachment 1 of the LAR, do not provide any explicit discussion regarding the implementation of the Appendix J Option B general visual inspection requirements. In the LGS Technical Specifications, the Containment Leakage Rate Testing Program is based on RG 1.163. Regulatory Position C.3 of RG 1.163 specifies that visual examinations should be conducted prior to initiating a Type A test, and during two other refueling outages before the next Type A test based on a 10-year ILRT interval. For LGS Units 1 & 2, please discuss your program for visual inspections (with schedule and methods) that meets this requirement. Please indicate with schedule how you would supplement this 10-year interval-based visual inspections requirement for the requested 15-year ILRT interval to

ensure a continuing means of early uncovering of evidence of containment structural deterioration.

- c. With reference to Section 4.4 (page 5) of Attachment 1 of the LAR, please describe with schedule and methods the IWE/IWL CISI program examinations that are or will be scheduled to be performed on containment pressure-retaining structures, systems and components prior to and during the requested 5-year extension period. This should also include your schedule and methods for examination and testing of seals, gaskets, moisture barriers and bolted connections associated with containment pressure boundary. Please provide this information for LGS Units 1 and 2. Also, indicate the dates when the most recent IWE examinations were completed for Unit 1.
- d. Please provide information of instances, if any, during implementation of the IWE/IWL CISI program at LGS Units 1 & 2 where existence of or potential for degradation conditions in inaccessible areas of the primary containment structure and metallic liners were identified and evaluated based on conditions found in accessible areas as required by 10 CFR 50.55a(b)(2)(viii)(E) and 10 CFR 50.55a(b)(2)(ix)(A). If there were any instances of such conditions, please discuss the findings and actions taken.
- e. Are bellows used on penetrations through containment pressure-retaining boundaries at LGS Units 1 & 2? If so, please provide information on their location, inspection, testing and operating experience with regard to detection of leakage through penetration bellows.