



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 5, 2012

Mr. Michael P. Gallagher
Vice President, License Renewal Projects
Exelon Generation Company, LLC
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
LIMERICK GENERATING STATION, UNITS 1 AND 2, LICENSE RENEWAL
APPLICATION (TAC NOS. ME6555 AND ME6556)

Dear Mr. Gallagher:

By letter dated June 22, 2011, Exelon Generation Company, LLC submitted an application pursuant to Title 10 of the *Code of Federal Regulations*, Part 54, to renew the operating licenses for Limerick Generating Station, Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information (RAIs) were discussed with Christopher Wilson, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me by telephone at 301-415-3733 or by e-mail at Robert.Kuntz@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Kuntz", with a large, sweeping flourish extending to the right.

Robert F. Kuntz, Senior Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-352 and 50-353

Enclosure:
Requests for Additional
Information

cc w/encl: Listserv

LIMERICK GENERATING STATION
LICENSE RENEWAL APPLICATION
REQUESTS FOR ADDITIONAL INFORMATION

RAI 3.5.2.3.2-1.1

Background

In the response to RAI 3.5.2.3.2-1, PVC roofing scuppers being managed for cracking were added to the Structures Monitoring program. In the response to RAI 3.5.2.3.11-1, fiberglass metal components (permanent drywell shielding) being managed for rips and tears were added to the Structures Monitoring program.

Issue

LRA Section B.2.1.35, Structures Monitoring, "Program Description," does not include polymeric components being managed for cracking, rips, and tears. In addition, Enhancement No. 2 lists newly added components; however, roofing scuppers and fiberglass metal components (permanent drywell shielding) were not included in the list when the aging management review (AMR) tables were updated.

Request

Confirm that the Structures Monitoring program will manage polymeric components within the scope of the program for cracking, rips and tears and that the roofing scuppers and fiberglass metal components (permanent drywell shielding) are within the scope of the Structures Monitoring program. Revise the Structures Monitoring program as necessary to address these items.

RAI B.2.1.7-2.1

Background

The response to RAI B.2.1.7-2, provided by letter dated February 15, 2012, stated that the Boiling Water Reactor (BWR) Stress Corrosion Cracking Program includes BWR piping and piping welds made of austenitic stainless steel and nickel alloy regardless of American Society of Mechanical Engineers (ASME) Code classification, consistent with the Generic Aging Lessons Learned (GALL) Report. The response also stated that determination of program scope included screening of all BWR piping and piping welds made of austenitic stainless steel that are four inches or greater in nominal diameter containing reactor coolant at a temperature greater than 93 °C (200 °F) during power operation, regardless of ASME Code classification. The response further stated that this screening identified only ASME Code Class 1 piping as within the scope of the BWR Stress Corrosion Cracking Program.

In comparison, the revised Update Final Safety Analysis (UFSAR) supplement (LRA Section A.2.1.7) provided in the response states that the BWR Stress Corrosion Cracking aging management program is an existing augmented Inservice Inspection Program that manages intergranular stress corrosion cracking (IGSCC) in reactor coolant pressure boundary piping and piping components made of stainless steel and nickel based alloy, regardless of code classification, as delineated in NUREG-0313, Revision 2, and NRC Generic Letter 88-01 and its Supplement 1.

ENCLOSURE

Issues

The revision to the UFSAR supplement, which includes the “reactor coolant pressure boundary piping,” is in apparent conflict with the program description provided in response to RAI B.2.1.7-2, which indicates that the scope of program includes all relevant piping regardless of ASME Code classification.

Request

Justify why the revision to the UFSAR supplement (LRA Section A.2.1.7) includes “reactor coolant pressure boundary piping,” inconsistent with the response indicating that the scope of program includes relevant piping and piping welds regardless of ASME Code classification. Alternatively, revise the UFSAR supplement (LRA Section A.2.1.7) to include “relevant piping and piping welds” without a reference to “reactor coolant pressure boundary piping and piping welds,” consistent with the program description provided in the response to RAI B.2.1.7-2.

RAI B.2.1.13-2.1

Background

The response to RAI B.2.1.13-2, dated February 15, 2012, stated that the loss of material due to cavitation erosion in the reactor enclosure cooling water system piping will be managed by the Closed Treated Water Systems program, which includes an enhancement for periodic condition monitoring using non-destructive examination. The staff notes that LRA Section B.2.1.13 states that the enhancement includes condition and performance monitoring “to verify the effectiveness of the water chemistry control at mitigating aging effects.” In addition, the staff notes that LRA Section B.2.1.13 describes the Closed Treated Water Systems program as a mitigation program that includes water treatment “to modify the chemical composition of the water such that the function of the equipment is maintained and such that the effects of corrosion are minimized.”

The response to RAI B.2.1.13-2 also stated that loss of material due to cavitation erosion was not considered an applicable aging effect, and that cavitation erosion is a design or operating deficiency that is addressed during the current term of operation by the corrective action program. The staff notes that the design or operating deficiency, which is causing the cavitation erosion in the reactor enclosure cooling water system was not corrected, but instead was addressed by implementing periodic monitoring of the loss of material. The response stated that a recurring task was initiated to periodically monitor this piping for cavitation erosion, with an initial frequency of 4 years, and once a trend has been established, the inspection frequency will be re-evaluated and adjusted accordingly. The staff notes that these aspects are not reflected in the program enhancement, which does not address “monitoring and trending” and does not describe reevaluating the initial 4-year inspection frequency after a trend has developed.

Issue

The loss of material due to cavitation erosion does not appear to be adequately managed by the Closed Treated Water Systems program, because the program minimizes the effects of

corrosion through water chemistry controls, and the loss of material due to cavitation erosion is not related to water chemistry control. In addition, although the program enhancement includes condition monitoring activities using non-destructive examinations, the stated purpose of the enhancement is to verify the effectiveness of water chemistry control, and the enhancement does not discuss the initial 4-year inspection frequency or the trending activities to adjust the inspection frequency.

In addition, since the loss of material is caused by a design/operating deficiency, it was not clear to the staff whether variations in operating conditions can affect the cavitation erosion rate, and if so, whether the "parameters monitored or inspected" program element needs to monitor temperatures, flow rates, or other parameters in establishing the cavitation erosion trend.

Request

Provide a detailed description of the proposed aging management program to manage loss of material due to cavitation erosion in reactor enclosure cooling water system piping. Include a discussion of enhancements to the appropriate program elements of an existing AMP or a discussion of all ten program elements for a plant-specific AMP. Also include a discussion of any monitoring activities, (e.g., temperatures, flow rates), that may need to be trended in order to establish the cavitation erosion rate.

April 5, 2012

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Sincerely,
/RA/

Robert F. Kuntz, Senior Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-352 and 50-353

Enclosure:
Requests for Additional
Information

cc w/encl: Listserv

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NAME	YEdmonds	RKuntz	DMorey	RKuntz
DATE	3/30/12	3/30/12	3/30/12	04/5/12

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Letter to M. Gallagher from R Kuntz dated April 5, 2012

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LIMERICK GENERATING STATION LICENSE RENEWAL APPLICATION (TAC
NOS. IVIE6555, ME6556)**

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