



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

July 20, 2012

**LICENSEE:** Exelon Generation Company, LLC

**FACILITY:** Limerick Generating Station

**SUBJECT:** SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON JUNE 11, 2012, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND EXELON GENERATION COMPANY, LLC, CONCERNING REQUESTS FOR ADDITIONAL INFORMATION PERTAINING TO THE LIMERICK GENERATING STATION, LICENSE RENEWAL APPLICATION (TAC. NOS. ME6555 AND ME6556)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Exelon Generation Company, LLC held a telephone conference call on June 11, 2012, to discuss and clarify the staff's requests for additional information (RAIs) concerning the Limerick Generating Station license renewal application. The telephone conference call was useful in clarifying the intent of the staff's RAIs.

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a listing of the RAIs discussed with the applicant, including a brief description on the status of the items.

The applicant had an opportunity to comment on this summary.

A handwritten signature in black ink, appearing to read "R. Kurtz", is positioned above the typed name of Robert F. Kurtz.

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

Docket Nos. 50-352 and 50-353

**Enclosures:**

1. List of Participants
2. List of Requests for Additional Information

cc w/encls: Listserv

TELEPHONE CONFERENCE CALL  
LIMERICK GENERATING STATION  
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS  
June 11, 2012

PARTICIPANTS

AFFILIATIONS

Robert Kuntz	Nuclear Regulatory Commission (NRC)
Seung Min	NRC
William Holston	NRC
Bo Pham	NRC
James Medoff	NRC
William Gardner	NRC
Mike Gallagher	Exelon Generation Company, LLC (Exelon)
Chris Wilson	Exelon
Gene Kelly	Exelon
Al Fulvio	Exelon
Mary Kowalski	Exelon
John Hufnagel	Exelon
Shannon Rafferty-Czincila	Exelon

LIMERICK GENERATING STATION  
LICENSE RENEWAL APPLICATION  
DRAFT REQUESTS FOR ADDITIONAL INFORMATION

**DRAI 3.3.2.1.10-1**

Background

SRP-LR Table 3.3.1, item 3.3.1-69, recommends that copper alloy components exposed to fuel oil be managed for loss of material by GALL Report AMPs XI.M30, "Fuel Oil Chemistry," and AMP XI.M32, "One-Time Inspection." However, item 3.3.1-69, states, "[t]he Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.1.26) program has been substituted and will be used to manage the loss of material in the copper alloy valve bodies associated with dirty fuel oil drain piping in the Emergency Diesel Generator System."

LRA Table 3.3.1, item 3.3.1-70 states that the Fuel Oil Chemistry program and One-Time Inspection program will be used to manage the loss of material in carbon steel piping, piping components, and piping elements, and tanks exposed to fuel oil in the emergency diesel generator system. However, item 3.3.1-70 states that "[t]he Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.1.26) program has been substituted and will be used to manage the loss of material in the carbon steel Dirty Fuel Oil Drain Tank and dirty fuel oil drain piping in the Emergency Diesel Generator System."

GALL Report AMP XI.M32 recommends that inspections should focus on locations that are isolated from the flow stream, that are stagnant, or have low flow for extended periods and are susceptible to the gradual accumulation or concentration of agents that promote certain aging effects. It also recommends that inspections will include a representative sample size of 20 percent of the population (defined as components having the same material, environment, and aging effect combination), or a maximum of 25 components. These inspections can commence prior to the period of extended operation or be conducted early in the period of extended operation.

GALL Report AMP XI.M38 recommends that inspections be performed during the periodic system and component surveillances or during the performance of maintenance activities when the surfaces are made accessible for visual inspection.

Issue

Given that the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program has been substituted for the One-Time Inspection program, it is unclear to the staff that the minimum number of inspections recommended by the GALL Report will be performed. In addition, the inspections conducted by the One-Time Inspection program would have commenced prior to the period of extended operation or been conducted early in the period of extended operation, while those conducted by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program will be conducted during the period of extended operation. It is unclear to the staff how the timing of inspections of the latter program is sufficient.

### Requests

State the basis for why it is acceptable to substitute the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program in place of the One-Time Inspection, given that the number and timing of inspections conducted by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components program may not be sufficient to ensure that the intended function(s) of the components within the scope of license renewal will be met in the period of extended operation.

**Discussion:** The applicant indicated that the information requested in this DRAI was previously provided in response to RAI B.2.1.26-2 which was transmitted to the NRC by letter dated February 15, 2012. The staff reviewed the response to RAI B.2.1.26-2 and agrees that the information requested had previously been provided. Therefore, this DRAI will not be sent as a formal RAI.

### **DRAI B.1.4-2**

#### Background

Request for additional information (RAI) B.1.4-1, issued on February 16, 2012, requested a description of the programmatic activities that will be used to continually identify aging issues, evaluate them, and as necessary, enhance the aging management programs (AMPs) or develop new AMPs for license renewal. The response dated March 13, 2012, provided additional information regarding the Limerick Generating Station (LGS) Operating Experience program.

On March 16, 2012, the NRC issued LR-ISG-2011-05, "Ongoing Review of Operating Experience" to clarify the staff's position that license renewal AMPs should be informed, and enhanced when necessary, based on the ongoing review of both plant-specific and industry operating experience.

#### Issue

The response to B.1.4-1 described LGS's plant-specific programmatic framework for considering operating experience. However, in reviewing aspects of the LGS program against the guidance set forth in LR-ISG-2011-05, the staff needs further clarification on the implementation timeframe of the proposed enhancements.

#### Request

Where the March 13, 2012, response states that enhancements to the Operating Experience program "will be implemented prior to the period of extended operation," provide further clarification regarding the approximate timeframe this would take place with respect to the period of extended operation. Include any relevant practical consideration that would impact the implementation timeframe.

**Discussion:** The applicant indicated that the request is clear. This DRAI will be sent as a formal RAI.

### **DRAI B.2.1.25-1.1**

#### **Background**

The response to RAI B.2.1.25-1, provided by letter dated February 15, 2012, states that stress corrosion cracking (SSC) is not applicable for stainless steel surfaces in an outdoor air environment in auxiliary and steam and power conversion systems because:

- Although chlorine, as sodium hypochlorite, is added to the water in the cooling towers, prevailing wind direction is such that the cooling tower plume is directed away from the plant
- A review of plant operating experience has revealed no occurrences of cracking in outdoor stainless steel components.
- Recent inspections performed on the external surfaces of large outdoor stainless steel components have revealed that these components are in good material condition.

#### **Issue**

Experimental studies and industry operating experience in chloride-containing (coastal) environments have shown that stainless steel exposed to an outdoor air environment can crack at temperatures as low as 104 to 120 degrees F, depending on humidity, component surface temperature, and contaminant concentration and composition. The staff noted that while the experimental studies demonstrated that cracking can occur in 4 to 52 weeks, the industry operating experience failures did not necessarily occur early in plant life and therefore, the staff cannot conclude that recent inspections are sufficient to demonstrate an aging effect will not occur during the period of extended operation.

Given that a prevailing wind direction does not result in the absence of contaminant deposition by the cooling tower plume, and that information has not been provided on the potential for chloride contamination from the onsite soil or nearby agricultural and industrial sources, the staff lacks sufficient information to conclude that SCC cannot occur in stainless steel components located in an outdoor air environment.

#### **Request**

- 1) In light of industry operating experience in chloride-containing environments, state the basis for why the chemical compounds in the cooling tower plume cannot result in SCC if plume fallout (regardless of prevailing wind direction) accumulates on the external surfaces of stainless steel piping within the scope of license renewal.
- 2) State the basis for why chloride contamination is not expected to accumulate on stainless steel components within the scope of license renewal from the soil or nearby agricultural and industrial sources.

**Discussion:** The applicant indicated that the request is clear. This DRAI will be sent as a formal RAI.

## **DRAI 4.3-10.2**

### **Background**

The response to RAI 4.3-10.1, provided by letter dated May 4, 2012, stated that the steam dryer support brackets were evaluated in the reactor pressure vessel (RPV) stress report and the report stated that "exemption from fatigue analysis per N-415.1 (of the design code) is satisfied." The design code of the brackets was the 1968 Edition of the American Society of Mechanical Engineers (ASME) Code Section III with Addenda through summer 1969. The response also indicated that the control rod guide tube was exempted from fatigue analysis per Paragraph NG-3222.4(d) of the ASME Code Section III.

### **Issue**

The staff noted that the fatigue waiver provisions in N-415.1 of the 1968 Edition of ASME Code Section III with Addenda through summer 1969 discussed that fatigue analyses were not required when all four specific conditions were met. In particular, the staff noted that Condition (a) of N-415.1 required that the specified numbers of times (including startup and shutdown) that the pressure will be cycled from atmospheric pressure to the operating pressure and back to atmospheric pressure shall not exceed certain requirements. The staff noted that the fatigue waiver provision depended on the assumption of the number of occurrence of transients (such as startup and shutdown), which is a time-dependent parameter. The staff noted that the fatigue waiver provisions in Paragraphs NG-3222.4(d) and NB-3222.4(d) of the ASME Code Section III also contained similar transient cycles conditions. The response to RAI 4.3-10.1 did not provide a justification of why the fatigue waivers were not identified as time limited aging analysis (TLAAs) in the License Renewal Application (LRA) in accordance with 10 CFR 54.21(c)(1).

### **Request**

- 1) Clarify how the fatigue waiver provisions in ASME Code, Section III, compare to the six criteria for TLAAs in 10 CFR 54.3, and justify whether or not the fatigue waivers for the control rod guide tube and the steam dryer support brackets should be identified as TLAAs for the LRA. If the fatigue waivers need to be identified as TLAAs, provide necessary information and LRA revision to support the TLAA disposition.
- 2) Confirm that all fatigue waiver provisions in the ASME Code, Section III, have been identified as TLAAs, as applicable.

**Discussion:** The applicant indicated that the request is clear. This DRAI will be sent as a formal RAI.

Letter to M. Gallagher from R Kuntz dated July 20, 2012

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

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LICENSEE: Exelon Generation Company, LLC

FACILITY: Limerick Generating Station

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON MAY 16, 2012, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND EXELON GENERATION COMPANY, LLC, CONCERNING REQUESTS FOR ADDITIONAL INFORMATION PERTAINING TO THE LIMERICK GENERATING STATION, LICENSE RENEWAL APPLICATION (TAC. NOS. ME6555 AND ME6556)

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**/RA/**

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