

## LimerickNPEm Resource

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**From:** Kuntz, Robert  
**Sent:** Tuesday, June 05, 2012 4:36 PM  
**To:** Christopher.Wilson2@exeloncorp.com  
**Cc:** Anthony Z. Roisman; gfettus@nrdc.org; Smith, Maxwell; Kanatas, Catherine  
**Subject:** DRAFT Request for Information RE: Limerick Generating Station license renewal application  
**Attachments:** LGS LRA DRAFT followup RAI on SCC and 4.3.docx

Chris,

Attached is a DRAFT Request for Information that the NRC staff is preparing to issue related to the Limerick Generating Station license renewal application. If Exelon would like clarification on the attached let me know and I will arrange a teleconference with the staff.

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**Hearing Identifier:** Limerick\_LR\_NonPublic  
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**From:** Kuntz, Robert  
**Created By:** Robert.Kuntz@nrc.gov

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**Options**

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LIMERICK GENERATING STATION  
LICENSE RENEWAL APPLICATION  
DRAFT REQUESTS FOR ADDITIONAL INFORMATION

**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.

ENCLOSURE

## **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.