

## **NRR-PMDAPEm Resource**

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**From:** Feintuch, Karl  
**Sent:** Tuesday, July 17, 2012 12:56 PM  
**To:** 'Jack Gadzala'; 'Craig D Sly'  
**Cc:** Cheruvenki, Ganesh  
**Subject:** ME7727 - Kewaunee - Request for Additional Information Re: RVI components Inspection Plan - Follow-up RAI to response provided for RAI item Cher-006  
**Attachments:** ME7727 RAI-Cher-017 .docx

By letter dated December 12, 2011, Dominion Energy Kewaunee, Inc. (DEK, the licensee), submitted an inspection plan for the reactor vessel internals (RVI) components at Kewaunee Power Station (KPS). In its e-mail submittal dated March 19, 2012, the licensee submitted the Technical Report KLR-1309A, "License Renewal Project, Aging Management Program, ASME Section XI, In-service Inspection, Subsection IWB, IWC, and IWD, Reactor Vessel Internals Inspection, Kewaunee Power Station," to the NRC staff for review. Pursuant to the license renewal commitments items 1 and 2 addressed in Chapter 15, Table 15.7.1, "License Renewal Commitments," of the Updated Final Safety Evaluation Report (UFSAR), the licensee requested that the NRC staff review and approve the subject inspection plan.

The NRC staff reviewed the DEK response dated June 28, 2012 to its question **ME7727-RAII-EVIB-CHER-006-2012-05-09**, and the NRC staff has some concerns regarding the aging degradation in Alloy X-750 clevis insert bolts. Consequently, the NRC staff developed a follow-up question to address this issue (See attached).

Please review the attached draft RAI item. It is in three parts. Please confirm that the item is understood so we can establish a mutually agreeable date for response or please request a conference call to clarify the request.

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Inspection Plan - Follow-up RAI to response provided for RAI item Cher-006  
**Sent Date:** 7/17/2012 12:56:12 PM  
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**From:** Feintuch, Karl

**Created By:** Karl.Feintuch@nrc.gov

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Tracking Status: None

**Post Office:** HQCLSTR01.nrc.gov

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**DRAFT REQUEST FOR ADDITIONAL INFORMATION (RAI)**  
**ME7727-RAII-EVIB-Cher-017-2012-07-17**  
**RELATED TO LICENSEE'S REACTOR VESSEL INTERNALS INSPECTION**  
**PLAN REVIEW REQUEST**  
**KEWAUNEE POWER STATION (TAC NO. ME7727)**  
**DOCKET NO. 50-305**

By letter dated December 12, 2011, Dominion Energy Kewaunee, Inc. (DEK, the licensee), submitted an inspection plan for the reactor vessel internals (RVI) components at Kewaunee Power Station (KPS). In its e-mail submittal dated March 19, 2012, the licensee submitted the Technical Report KLR-1309A, "License Renewal Project, Aging Management Program, ASME Section XI, In-service Inspection, Subsection IWB, IWC, and IWD, Reactor Vessel Internals Inspection, Kewaunee Power Station," to the NRC staff for review. Pursuant to the license renewal commitments items 1 and 2 addressed in Chapter 15, Table 15.7.1, "License Renewal Commitments," of the Updated Final Safety Evaluation Report (UFSAR), the licensee requested that the NRC staff review and approve the subject inspection plan.

The NRC staff reviewed the licensee's response (dated June 28, 2012) to its question ME7727-RAII-EVIB-CHER-006-2012-05-09, and the NRC staff has some concerns regarding the aging degradation in Alloy X-750 clevis insert bolts. Consequently, the NRC staff developed a follow-up question (below) to address this issue.

**ME7727-RAII-EVIB-Cher-017-2012-07-17**

According to Section A.1.4 in MRP-175, "Materials Reliability Program: PWR Internal Aging Degradation Mechanism Screening Threshold Values," susceptibility to stress corrosion cracking (SCC) in Nickel Base Alloy X-750 depends on the type of heat treatment that is performed on the alloy. High temperature heat treatment (HTH) process that is used on Alloy X-750 offers better resistance to SCC than the other age hardened heat treatment processes.

Previous operating experience in a US PWR unit indicates that the Alloy X-750 clevis insert bolt experienced cracking. In Table 4-9 of the MRP-227-A report, the MRP identified only wear as an aging mechanism for the clevis insert bolts.

A - Based on the operating experience as stated above, the staff believes that cracking should also be included as an active aging degradation in the clevis insert bolts. Therefore, the staff requests that the licensee confirm that Alloy X-750 material in HTH condition was used for clevis insert bolts at KPS.

B - If the Alloy X-750 material is not in HTH condition, the staff requests that the licensee include verification of aging degradation due to cracking in its inspection and evaluation guidelines for these bolts at KPS.

C - VT-3 examination of the bolts every 10 years would detect completely failed or missing bolts but not partially cracked bolts. Therefore, the staff requests the licensee to provide:

- (1) justification that VT-3 technique would be adequate for monitoring the cracking issue in the clevis insert bolts before it fails;
- (2) information on the number of clevis insert bolts that are necessary for maintaining their function during the extended period of operation; and,
- (3) information on the number of clevis insert bolts that are currently present at KPS.