From: Chandu Patel
To: Jim.Rogers@ge.com
Date: 07/10/2007 9:31:35 AM
Subject: Supplemental RAI on ESBWR Chapter 3, RAIs 3.0-1, 3.9-143, and 3.9-166

Jim,

Please provide the response to the attached three more supplemental request for additional information. We have revised RAI 3.0-1 to make it little more prescriptive. Please let me know if it affects your schedule for submitting the original response to RAI 3.0-1. Also, please let me know your schedule for responding to these items.

Thanks
Chandu

CC: AEC; David Terao; Eric Oesterle; james.kinsey@ge.com; Jennifer Dixon-Herrity; Kathy K. (GE Infra Energy) Sedney; Kimberly Gruss; Mohammed Abid; Pei-Ying Chen; Thomas Scarbrough

Mail Envelope Properties (46938A37.652 : 2 : 35058)

Subject: Supplemental RAI on ESBWR Chapter 3, RAIs 3.0-1, 3.9-143, and 3.9-166
Creation Date 07/10/2007 9:31:35 AM
From: Chandu Patel

Created By: CPP@nrc.gov

Recipients
ge.com
  james.kinsey CC (james.kinsey@ge.com)
  Jim.Rogers (Jim.Rogers@ge.com)
  kathy.Sedney CC (Kathy K. (GE Infra Energy) Sedney)

nrc.gov
 OWGWPO01.HQGWDO01
  MXA6 CC (Mohammed Abid)

nrc.gov
 OWGWPO02.HQGWDO01
  KAG1 CC (Kimberly Gruss)

nrc.gov
 OWGWPO03.HQGWDO01
  AEC CC (Amy Cubbage)
  JLD CC (Jennifer Dixon-Herrity)
  PYC CC (Pei-Ying Chen)

nrc.gov
 TWGWPO02.HQGWDO01
  DXT CC (David Terao)
  TGS CC (Thomas Scarbrough)

nrc.gov
 TWGWPO03.HQGWDO01
  ERO1 CC (Eric Oesterle)

Post Office	Route
	ge.com
OWGWPO01.HQGWDO01	nrc.gov
OWGWPO02.HQGWDO01	nrc.gov
OWGWPO03.HQGWDO01	nrc.gov
TWGWPO02.HQGWDO01	nrc.gov
TWGWPO03.HQGWDO01	nrc.gov

Files	Size	Date & Time
MESSAGE	785	07/10/2007 9:31:35 AM
SUPRAI CHPT 3 June 28.wpd	13424	07/10/2007 9:15:20 AM

Options

Expiration Date:	None
Priority:	Standard
ReplyRequested:	No
Return Notification:	None
Concealed Subject:	No
Security:	Standard

Request for supplemental Information on ESBWR, Tier 2, Chapter 3 Open Items

1. Comment on response to RAI 3.9-143-S01 (MFN 07-308, June 6, 2007):

In RAI 3.9-143, the staff requested GE to assess, in the event of weld failure at the penetration nozzle in the bottom of the reactor vessel, the adequacy of the control rod guide tubes (CRGT) and the control rod drive housing (CRDH) subjected to flow-induced vibrations, and the ability to insert the control rod, considering the boundary conditions at the top of the CRGT and failed weld, and the CRGT base coupling connection with the CRDH.

In its response to RAI 3.9-143 (MFN 07-308), dated June 6, 2007, GHNEA stated that, in the unlikely event of a complete weld failure, the transversal movement of the CRD Housing and the CRD Guide Tube is limited. Flow induced vibration during this hypothetical condition would produce stresses in the CRD Guide Tube that are within the endurance limit as defined using the fatigue curve for austenitic stainless steel, Figure I-9.2.1 of the ASME Code, Section III.

It is not clear how GHNEA reached the conclusion described above. GHNEA is requested to provide the following information to justify its conclusion:

(1) What is the maximum transversal movement of the CRD Housing and the CRD Guide Tube; (a) during normal operation, and (b) under the condition with weld failure?

(2) The natural frequency of the worst system configuration with boundary conditions at the top of the CRGT, the CRGT base coupling connection with the CRDH, and the failed weld at the bottom of the reactor vessel.

(3) The maximum cross flow and longitudinal flow velocities along the system configuration identified in (2) above, and those at the CRGT-CRDH coupling location.

(4) The results of the calculations for vortex shedding frequencies of the system configuration identified in (2) above, and the resulting maximum stress in the CRD.

2. Comment on response to RAI 3.9-166 (MFN 07-303, May 30, 2007):

GHNEA is requested to discuss the basis for assigning the responsibility for pressure relief devices to the COL Holder rather than the COL Applicant. This comment also applies to RAIs167, 169, and 170.

3. Revised RAI 3.0-1 (RAI Letter No. 93, January 31, 2007):

The NRC's original request in RAI 3.0-1, discussed in RAI Letter 93, requested the following:

For mechanical connections secured by threaded fasteners in ASME Code Class 1, 2, and 3 systems, the staff recently developed Standard Review Plan (SRP) Section 3.13, Revision 0, Threaded Fasteners - ASME Code Class 1, 2, and 3, as review guidance.

A. Provide an outline of the criteria for design, material selection, mechanical testing, and inservice inspection for bolting to ensure compliance with GDCs 1, 4, 14, 30, and 10 CFR 50.55a.

B. Identify any control of fabrication practices and/or special processes used to mitigate stress corrosion cracking or other forms of material degradation in the bolting during service.

C. Provide a discussion, based on past industry operating experience, that demonstrates how the bolting practices for ESBWR systems/components effectively implements the lessons learned from the numerous failures in high strength bolting in the mid-1960s through

1980s.

In addition to the above, please provide response to the following additional items:

D. Justify use of lubricants and/or surface treatments in mechanical connections secured by threaded fasteners, and the compatibility of these materials with the threaded fasteners.

E. Include reference to Certified Material Test Reports.