

February 4, 2010

ORGANIZATION: Nuclear Energy Institute

SUBJECT: SUMMARY OF THE LICENSE RENEWAL MEETING BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION STAFF AND THE NUCLEAR ENERGY INSTITUTE REGARDING GENERIC AGING LESSONS LEARNED REPORT AND NUREG-1800, "STANDARD REVIEW PLAN FOR REVIEW OF LICENSE RENEWAL APPLICATIONS FOR NUCLEAR POWER PLANTS"

The U.S. Nuclear Regulatory Commission staff (NRC or the staff) and representatives of the Nuclear Energy Institute (NEI) met on January 4-7, 2010, in a Category 2 public meeting, to discuss draft license renewal guidance document material prepared by the NRC staff. Enclosures to this letter are: (1) list and affiliation of meeting participants, (2) meeting agenda, and (3) a summary of information requested by the NRC regarding small-bore piping socket weld failures. A summary of the meeting's discussions follows.

1. Draft License Renewal Guidance Documents Prepared by the NRC Staff

- a. In advance of the public meeting, the NRC staff made portions of the draft Generic Aging Lessons Learned (GALL) Report revision (NUREG-1801, Revision 2) publicly available. The material was posted on the NRC public web-site at:

<http://www.nrc.gov/reactors/operating/licensing/renewal/guidance/updated-guidance.html>

- b. The draft material prepared by the staff was discussed during the multi-day meeting between the NRC and NEI. The NEI participants provided numerous verbal comments and suggested changes for NRC staff consideration. The staff agreed to consider the suggested changes, but did not promise that any particular change would be incorporated.
- c. The staff discussed the topic of buried piping at length. The staff acknowledged the industry initiative on buried piping and that the draft NUREG-1801, Revision 2, Aging Management Programs in this area will be influenced by ongoing interactions between the staff and external stakeholders.

- d. The topic of inspector qualifications to perform visual inspections of mechanical items was discussed. The draft material prepared by the staff typically mentioned American Society of Mechanical Engineers (ASME) type qualifications. NEI comments were made that inspectors of mechanical items are qualified in a variety of ways depending upon the plant licensing bases, the types of inspections being performed, and availability of non-ASME standards organization qualifications. The staff acknowledged the industry comments and indicated the draft material would be re-examined in light of the industry feedback.

## 2. Staff Request for Information Pertaining to Small-Bore Piping Socket Weld Cracking

During the meeting, the staff discussed aspects of a telephone conference call held with NEI on December 4, 2009. The NRC staff requested that NEI evaluate aging management aspects associated with operating experience of small-bore piping socket welds failing by stress corrosion cracking, thermal fatigue, and high cycle fatigue. The staff requested that NEI provide information in response to the topics identified in Enclosure 3 of this meeting summary.

The staff and NEI discussed several aspects regarding the socket weld failures including: (1) the fact that some socket weld failures do not have full root cause evaluations, (2) no qualified examination techniques exists for socket welds, (3) staff belief that potential GALL revisions will depend on the types and number of socket-weld failures that are age-related, and (4) handling of related requests for additional information for plants currently undergoing license renewal reviews.

NEI indicated that it would take about one month to gather the information in response to the staff request and that they planned on submitting a letter in mid-February. The staff and NEI will either arrange a follow-up telephone conference call or will discuss the topic again at the next quarterly NEI – Division of License Renewal meeting (February 24, 2010).

## 3. Follow-On Activities For the License Renewal Guidance Documents Update

NEI indicated that some additional information will be provided to the staff in January and February 2010. NEI and the staff agreed to meet during the upcoming NEI – Division of License Renewal quarterly meeting (February 24, 2010) to discuss further the draft GALL update material.

The staff plans to issue the draft updates for the GALL Report and “Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants” for a 45-day formal public comment period in late-March 2010. A public workshop to discuss the draft updates

is planned for mid-April 2010. Following receipt and resolution of public comments on the draft updates, the staff will prepare the final revisions of the license renewal guidance documents for planned issuance in December 2010.

4. Public Participation

No member of the public provided comments or asked questions at the meeting.

***/RA by Linda Yee for/***

Ian F. Spivack, Mechanical Engineer  
Program Operations Branch  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Enclosures:  
As stated

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No member of the public provided comments or asked questions at the meeting.

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Enclosures:  
As stated

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SSmith, NMSS                NO'Keefe, RIV  
SDuraiswamy, ACRS  
RConte, RI  
MModes, RI  
GHopper, RII  
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## Participant List

### License Renewal Meeting Between the U.S. Nuclear Regulatory Commission Staff and the Nuclear Energy Institute

January 4-7, 2010

<u>Participant</u>	<u>Affiliation</u>
Jerry Dozier	U.S Nuclear Regulatory Commission (NRC)
David Stroup	NRC
Bruce Lin	NRC
Amy Hull	NRC
Abdul Sheikh	NRC
Barry Elliot	NRC
Bart Fu	NRC
Bob Gramm	NRC
Brian Holian	NRC
Cliff Doutt	NRC
Duc Nguyen	NRC
Hans Ashar	NRC
Lee Banic	NRC
Rachel Vaucher	NRC
Raj Auluck	NRC
Rui Li	NRC
Samson Lee	NRC
Seung Min	NRC
Dave Alley	NRC
Matt Yoder	NRC
Albert Wong	NRC
Emma Wong	NRC
Keith Hoffman	NRC
Dave Pelton	NRC
Bob Hardies	NRC
Keith Hoffman	NRC
Jerome Bettle	NRC
Ted Ivy	Nuclear Energy Institute (NEI)
Alan Cox	NEI
Anthony Ploplis	NEI
Chris Mallner	NEI
David Clohecyc	NEI
Eric Blocker	NEI
Gene Kelly	NEI
Jake Lefman	NEI
Julie Keys	NEI
Ky Nguyen	NEI
Michael Heath	NEI
Mike Fallon	NEI
Phillipe Soenen	NEI

ENCLOSURE 1

**Participant**

Rick Cliche  
Sharon Merciel  
William Holston  
Kathryn Sutton  
Bob Jackson  
Erach Patel  
Jim Davis  
Katy Makeig  
Roland Royal

**Affiliation**

NEI  
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NEI  
Morgan Lewis  
Advanced Technology and Laboratories (ATL)  
ATL  
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ATL  
ATL

## **Tentative Agenda**

### **U.S. Nuclear Regulatory Commission (NRC) – Nuclear Energy Institute (NEI) Meeting Generic Aging Lessons Learned Update (GALL) – Nuclear Steam Supply System (NSSS) Topics**

**January 4, 2010**

9:00 am – 9:30 am	Introductions, logistics, NRC overview of draft revision
9:30 am – 9:40 am	Standard Review Plan (SRP) Appendix A1
9:40 am – 9:45 am	Use of American Society of Mechanical Engineers code (Chapter 1)
9:45 am - 10:00 am	In-service Inspection (M1)
10:00 am – 10:15 am	Class 1 small bore (M35) (Additional discussions about small bore on the morning of January 6, 2010)
10:15 am – 11:00 am	Boiling Water Reactor (BWR) Aging Management Programs (AMPs) (M4, M5, M6, M7, M8)
11:00 am – 11:15 am	Break
11:15 am – 12:15 pm	BWR AMPs - continued (M4, M5, M6, M7, M8)
12:15 pm – 1:00 pm	Lunch
1:00 pm – 2:15 pm	General (M31, X.M1, SRP 4.3, M2, M3, M12, SRP 4.2)
2:15 pm – 3:15 pm	Pressured Water Reactor (M10, M19, M37)
3:15 pm– 4:00pm	Open time for NEI NSSS comments

## **Tentative Agenda**

### **NRC - NEI Meeting GALL Update – Balance Of Plant (BOP) Topics**

**January 5, 2010**

9:00 am – 9:15 am	Introductions, logistics
9:15 am – 10:00 am	Buried piping (M28, M34)
10:00 am – 11:00 am	Miscellaneous (M17, M18, M22, M30, M39)

ENCLOSURE 2

11:00 am – 11:15 am	Break
11:15 am– 11:35 am	Fire Protection (M26, M27)
11:35 am – 12:15 pm	Open-cycle and treated water (M20, M21A)
12:15 pm – 1:00 pm	Lunch
1:00 pm – 1:45 pm	Miscellaneous (M23, M24, M25, M29)
1:45 pm – 2:30 pm	One-time and selective leaching (M32, M33)
2:30 pm – 3:15 pm	Internal and external surfaces (M36, M38)
3:15 pm – 4:00 pm	Open time for NEI BOP comments

### **Tentative Agenda**

#### **NRC - NEI Meeting GALL Update – Mechanical Carryover Topics**

**January 6, 2010**

9:00 am – 9:15 am	Introductions, logistics
9:15 am – 12:00 pm	Small-bore piping (including M35), SRP A1, other carryover topics from prior days

### **Tentative Agenda**

#### **NRC - NEI Meeting GALL Update – Structural Topics**

**January 6, 2010**

1:00 pm – 1:05 pm	Introductions, logistics
1:05 pm – 1:20 pm	Protective coatings (S8)
1:20 pm – 1:35 pm	Appendix J (S4)
1:35 pm – 3:30 pm	Structural topics (SRP 4.6, S1, S2, S3, S5, S6, S7, SRP 4.5)
3:30 pm – 4:00 pm	Open time for NEI structural comments



**Tentative Agenda**

**NRC - NEI Meeting GALL Update – Electrical Topics**

**January 7, 2010**

9:00 am – 9:15 am	Introductions, logistics
9:15 am – 11:30am	Electrical (SRP 3.6 and SRP 4.4, X.E1, E1, E2, E3, E4, E5, E6)
11:30 am – 12:00pm	Open time for NEI electrical comments

**Additional Material Provided to Nuclear Energy Institute  
Follow up Discussion Subjects - Generic Aging Lessons Learned Update  
Working Level Meeting  
January 6, 2010 Topic: Small – Bore Socket Weld Cracking**

During a telephone conference call on Friday, December 4, 2009, the U.S. Nuclear Regulatory Commission (NRC) staff requested that Nuclear Energy Institute (NEI) evaluate aging management based on operating experience of socket welds failed by stress corrosion cracking (SCC) and thermal fatigue. In addition, NEI and the applicants stated that failure by high cycle mechanical fatigue should not be considered as an aging effect for license renewal due to the short period of time for failure. After the call, the staff concluded that this position requires substantiation.

In order to exclude SCC, thermal-mechanical fatigue and high cycle mechanical fatigue in socket welds as an aging effect that requires aging management during the period of extended operation, we need to know the following information:

1. For each socket weld discussed by NEI and the staff at the December 4, 2009 meeting identify:
  - (a) the root cause of the failure (e.g., low cycle fatigue, high cycle vibratory fatigue, intergranular stress corrosion cracking, or other aging mechanism) and basis for the finding, including any design, operational and/or fabrication deficiencies,
  - (b) the period of time between the design and/or reconfiguration of the system containing the socket weld and the failure of the socket weld,
  - (c) the repairs and any changes made to remediate the conditions that led to the failure,
  - (d) any recurrence of failure at that location, including the local operating history and the length of time it took for the recurrence, and
  - (e) tests and/or examinations that have been performed on the repaired socket welds to ensure that the revised design changes do not result in the same failure mode.
2. Based on an evaluation of the information from Item 1, provide the basis for concluding that high cycle mechanical fatigue or any other root cause (Item 1(a)) should not be considered an applicable aging effect.
3. If Item 2 concludes that socket welds are subject to any applicable aging effects, provide an aging management program (consistent with the 10 elements described in Section A.1.2.3 of NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," Revision 1) that utilizes tests and examinations to mitigate, prevent, and/or monitor the condition or performance of socket welds.

Nuclear Energy Institute

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