

## IPRenewal NPEmails

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**From:** STROUD, MICHAEL D [MSTROUD@entergy.com]  
**Sent:** Thursday, April 24, 2008 9:00 AM  
**To:** Kimberly Green  
**Subject:** FW: Draft Telecon Summary--April 3, 2008 on Metal Fatigue, Bolted Connections, and Boraflex  
**Attachments:** Telecon Summary 04-03-08 Metal Fatigue TLAA.doc

Kim,

See comments from Alan Cox in the attached file and one comment below on TLAA telecom summary.

Thanks  
Mike

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**From:** COX, ALAN B  
**Sent:** Wednesday, April 23, 2008 3:58 PM  
**To:** STROUD, MICHAEL D  
**Cc:** YOUNG, GARRY G; FRONABARGER, DON  
**Subject:** FW: Draft Telecon Summary--April 3, 2008 on Metal Fatigue, Bolted Connections, and Boraflex

Mike,

I think it is important to include reference to the FMP and 54.21(c)(1)(iii) in the discussion that is citing information from one of our prior responses. Also, I included a few other minor suggestions.

Alan

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**From:** STROUD, MICHAEL D  
**Sent:** Wednesday, April 23, 2008 1:13 PM  
**To:** FRONABARGER, DON; Rucker, Roger B  
**Cc:** YOUNG, GARRY G; COX, ALAN B  
**Subject:** FW: Draft Telecon Summary--April 3, 2008 on Metal Fatigue, Bolted Connections, and Boraflex

Don & Roger,

Please review the attached telecom summary and provide me any comments or corrections that you might have. If you have no comments or corrections, please let me know.

Thanks  
Mike

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**From:** Kimberly Green [mailto:Kimberly.Green@nrc.gov]  
**Sent:** Wednesday, April 23, 2008 12:38 PM  
**To:** STROUD, MICHAEL D; Tyner, Donna  
**Subject:** Draft Telecon Summary--April 3, 2008 on Metal Fatigue, Bolted Connections, and Boraflex

Mike and Donna,

Attached is the draft telecon summary of April 3, 2008, on metal fatigue, bolted connections, and boraflex. Please let me know if any clarification/changes are necessary.

Thanks,

Kimberly Green  
Safety PM  
(301) 415-1627  
[kimberly.green@nrc.gov](mailto:kimberly.green@nrc.gov)

**Hearing Identifier:** IndianPointUnits2and3NonPublic\_EX  
**Email Number:** 98

**Mail Envelope Properties** (A79A58994C541C48BBCFB319610763CB03A3AB07)

**Subject:** FW: Draft Telecon Summary--April 3, 2008 on Metal Fatigue, Bolted Connections, and Boraflex  
**Sent Date:** 4/24/2008 8:59:45 AM  
**Received Date:** 4/24/2008 8:59:50 AM  
**From:** STROUD, MICHAEL D

**Created By:** MSTROUD@entergy.com

**Recipients:**  
"Kimberly Green" <Kimberly.Green@nrc.gov>  
Tracking Status: None

**Post Office:** LITEXETSP002.etrsouth.corp.entergy.com

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	1703	4/24/2008 8:59:50 AM
Telecon Summary 04-03-08 Metal Fatigue TLAA.doc		83520

**Options**  
**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**

LICENSEE: Entergy Nuclear Operations, Inc.

FACILITY: Indian Point Nuclear Generating Unit Nos. 2 and 3

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON APRIL 3, 2008, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND ENTERGY NUCLEAR OPERATIONS, INC., CONCERNING RESPONSES TO REQUEST FOR ADDITIONAL INFORMATION RELATED TO THE INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3, LICENSE RENEWAL APPLICATION—METAL FATIGUE, BOLTED CONNECTIONS, AND BORAFLEX

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Nuclear Operations, Inc. held a telephone conference call on April 3, 2008, to discuss and clarify the staff's draft request for additional information (D-RAI) concerning the Indian Point Nuclear Generating Unit Nos. 2 and 3, license renewal application. The telephone conference call was useful in clarifying the intent of the staff's D-RAI.

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

The applicant had an opportunity to comment on this summary.

Kimberly Green, Safety Project Manager  
Projects Branch 2  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosures:

1. List of Participants
2. Summary of Discussion

cc w/encls: See next page

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FACILITY: Indian Point Nuclear Generating Unit Nos. 2 and 3

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Kimberly Green, Safety Project Manager  
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**ADAMS Accession No.: G:\ADRO\DLR\RPB2\Indian Point\Safety Review\Telecon Summaries\Telecon Summary 04-03-08 Metal Fatigue TLAA.doc**

OFFICE	LA:DLR	PM:RPB2:DLR	BC:RPB2:DLR
NAME		KGreen	RFranovich
DATE	04/ /08	04/ /08	04/ /08

OFFICIAL RECORD COPY

**TELEPHONE CONFERENCE CALL  
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3  
LICENSE RENEWAL APPLICATION**

**LIST OF PARTICIPANTS  
APRIL 3, 2008**

**PARTICIPANTS**

**AFFILIATIONS**

Kim Green	U.S. Nuclear Regulatory Commission (NRC)
On Yee	NRC
Peter Wen	NRC
Jim Davis	NRC
Bo Pham	NRC
Jim Medhoff	NRC
Mike Stroud	Entergy Nuclear Operations, Inc. (Entergy)
Garry Young	Entergy
Alan Cox	Entergy
Ted Ivy	Entergy
Don Fronabarger	Entergy
Charlie Caputo	Entergy
John Curry	Entergy
Nelson Azevedo	Entergy
Charlie Jackson	Entergy

**DRAFT REQUESTS FOR ADDITIONAL INFORMATION (D-RAIs)  
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3  
LICENSE RENEWAL APPLICATION  
METAL FATIGUE**

**April 3, 2008**

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Nuclear Operations, Inc. held a telephone conference call on April 3, 2008, to discuss and clarify the following draft requests for additional information (D-RAIs) concerning the Indian Point Nuclear Generating Unit Nos. 2 and 3 license renewal application (LRA).

**D-RAI 4.3.1.8-1**

License Renewal Application Section 4.3.1 states “Current design basis fatigue evaluations calculate cumulative usage factors (CUFs) for components or sub-components based on design transient cycles.” For CUF values listed in LRA Tables 4.3-13 and 4.3-14, please provide the methodology used with sufficient results of the fatigue analysis such that the staff can make a determination based on the guidance described in Standard Review Plan-License Renewal (SRP-LR) (NUREG-1800). Specifically, please describe the details of how environmentally assisted fatigue (EAF) is factored into the calculation of the CUF using  $F_{en}$  values.

**Discussion:** The applicant was uncertain as to whether the staff was requesting that they provide the evaluations, or a description of evaluations. Based on the discussion with the applicant, the staff agreed to revise this question as follows. The revised question will be sent as a formal RAI.

License renewal application (LRA) Section 4.3.1 states “Current design basis fatigue evaluations calculate cumulative usage factors (CUFs) for components or sub-components based on design transient cycles.” For CUF values listed in LRA Tables 4.3-13 and 4.3-14, please describe the details of how various environmental effects are factored into the calculation of the CUF using  $F_{en}$  values.

**D-RAI 4.3.1.8-2**

From the review of EAF analysis of other plants, it was found that the transfer function methodology used in the EAF analysis may not provide valid results as it is dependent on the inputs. To assist the staff in its review, please provide the EAF analysis for all the NUREG/CR-6260 locations (components) at Indian Point unless it can be demonstrated that the CUF value is within the ASME Code limit of 1.0 by using the original 40-year analysis value adjusted for 60 years and multiplied by  $F_{en}$ , which is consistent with SRP-LR and ASME Code. This analysis should be completed by using NRC-approved fatigue software and the ASME Code, Section III, Subsection NB-3200 methodology (which defines the use of six stress components to determine the stress state and thereby calculates the principal stresses and stress intensities). Justify the analysis method, the load (stress) combination and the results of the ASME Code analysis if 2-D axis-symmetric modeling is used. In addition, the analysis should apply ASME code rules such as elastic-plastic correction factor,  $K_e$ , and stress intensities correction factor for modulus of elasticity. This analysis should be performed without the use of the transfer function method.

**Discussion:** The applicant wanted clarification on the staff's request. The applicant pointed out that the request is a new staff position; that for previous plants, the staff has not requested the analyses to be provided, and has accepted a commitment to perform the analyses two years prior to entering the period of extended operation as part of the Fatigue Monitoring Program in accordance with 10 CFR 54.21(c)(1)(iii). Subsequent to the telephone conference, the staff determined that no additional information is needed at this time. Therefore, a formal RAI will not be issued at this time.

#### **D-RAI 4.3.1.8-3**

SRP-LR Section 4.3.2.1.1.3 provides the basis for the staff acceptance of an aging management program to address environmental fatigue. It states, "[T]he staff has evaluated a program for monitoring and tracking the number of critical thermal and pressure transients for the selected reactor coolant system components. The staff has determined that this program is an acceptable aging management program to address metal fatigue of the reactor coolant system components according to 10 CFR 54.21(c)(1)(iii)." The staff is unable to determine if the Fatigue Monitoring Program of IP2 and IP3 contain sufficient details to satisfy this criterion, based on the NA items listed in LRA Tables 4.3-13 and 4.3-14. Please provide adequate details of the Fatigue Monitoring Program, specifically the fatigue analysis used in determining the CUF values for the NA locations and how IPEC plans to proceed in monitoring the locations of Tables 4.3-13 and 4.3-14 during the period of extended operation.

**Discussion:** The applicant wanted clarification on what the staff is requesting. Based on the discussion with the applicant, the staff agreed to revise this question as follows. The revised question will be sent as a formal RAI.

Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants (SRP-LR) Section 4.3.2.1.1.3 provides the basis for the staff acceptance of an aging management program to address environmental fatigue. It states, "[t]he staff has evaluated a program for monitoring and tracking the number of critical thermal and pressure transients for the selected reactor coolant system components. The staff has determined that this program is an acceptable aging management program to address metal fatigue of the reactor coolant system components according to 10 CFR 54.21(c)(1)(iii)." The staff is unable to determine if the Fatigue Monitoring Program for Indian Point 2 and Indian Point 3 contain sufficient details to satisfy this criterion. Please provide adequate details of the Fatigue Monitoring Program such that the staff can make a determination based on the criterion set forth in SRP-LR Section 4.3.2.1.1.3. Also, please explain in detail the corrective actions and the frequency that such actions will be taken so the acceptance criteria will not be exceeded in the period of extended operation. (This RAI will be renumbered ~~at as~~ RAI 4.3.1.8-2.)

#### **D-RAI 4.3.1.8-4**

Section B.1.12 of the LRA amendment dated January 22, 2008, states "If ongoing monitoring indicates the potential for a condition outside that analyzed above, IPEC may perform further reanalysis of the identified configuration using established configuration management processes as described above." Please explain in detail what is meant by the phrase "using established configuration management processes." Also, please explain in detail the corrective actions and the frequency that such actions will be taken so the acceptance criteria will not be exceeded in the period of extended operation.



**Discussion:** The applicant stated that it was unclear about the staff's request regarding "configuration management processes." In a subsequent call, the applicant explained that the configuration management processes referred to are those governed by its 10 CFR 50, Appendix B Quality Assurance program, and include design input verification and independent reviews which ensures that valid assumptions, transients, cycles, external loadings, analysis methods, and environmental fatigue life correction factors will be used in the fatigue analyses. Therefore, this portion of question is withdrawn and will not be sent as a formal RAI. The portion of the request that deals with corrective actions will be added to RAI 4.3.1.8-2 (as renumbered).

### **Non-EQ Bolted Cable Connection AMP**

#### **D-RAI 3.0.3.3.6-1**

With regard to Indian Point Aging Management Program (AMP) B.1.22, "Non-EQ Bolted Cable Connection Program," the license renewal application states that inspection methods may include thermography, contact resistance testing, or other appropriate methods including visual, based on plant configuration and industry guidance. In Generic Aging Lessons Learned (GALL) AMP XI.E6, the staff recommends thermography, contact resistance testing, or other appropriate methods based on plant configuration and industry guidance for detecting loss of preload or bolt loosening. In the case where visual inspection will be the only method used, provide a technical basis of how this will be sufficient to detect loss of preload or loosening of bolted connections.

**Discussion:** The applicant stated that this question is similar to an audit question that has been answered and subsequently discussed during two telephone conferences. This issue is currently being reviewed by the Division of Engineering, and therefore, is withdrawn at this time. However, when the staff has reached a determination, a formal RAI may be issued at such time.

### **Boraflex AMP**

#### **D-RAI 3.0.3.2.3-1**

Indian Point 2 Updated Final Safety Analysis Report, Revision 20, dated 2006, Section 14.2.1 on page 55 of 218, states in part that:

"Northeast Technology Corporation report NET-173-01 and NET-171-02 are based on conservative projections of amount of boraflex absorber panel degradation assumed in each sub-region. These projections are valid through the end of the year 2006."

Please confirm that the Boraflex neutron absorber panels in the Indian Point Unit 2 spent fuel pool have been re-evaluated for service through the end of the current licensing period. Also, please discuss the plans for updating the Boraflex analysis during the period of extended operation.

**Discussion:** The applicant indicated that the question is clear. This D-RAI will be sent as a formal RAI.

Field Cod

Field Cod