

UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

July 29, 2016

Mr. Paul Gallay Mr. James Bacon Riverkeeper 20 Secor Road Ossining, NY 10562

Dear Messrs. Gallay and Bacon:

On behalf of the Commission, I am responding to your letter of May 17, 2016, in which you express concerns regarding recent briefings that the Commissioners and their staffs received on the status of inspections at Indian Point Unit 2 regarding baffle-former bolts. You note that two briefings were conducted by the NRC staff on April 19, 2016, but that Riverkeeper, as a party to the ongoing license renewal proceeding, did not learn of the briefings until the NRC staff's counsel informed the Atomic Safety and Licensing Board and the parties of the briefings on April 26, 2016. You state that the Commission should have provided the parties to the adjudication with notice of the briefings and an opportunity to attend or participate. You also request that the Commission provide any relevant Commission-generated documents that may not have been provided to Staff counsel. Finally, you request reasonable advance notice of, and opportunity to attend or participate in, any future Commissioner briefings relevant to the resolution of the issues in the proceeding, including future briefings related to baffle-former bolts at Indian Point.

The Commission performs dual roles, in that it has general supervisory authority over the staff's activities and also sits in a quasi-judicial capacity in adjudications. Those two roles are kept separate. The separation of functions rule, set forth in 10 C.F.R. § 2.348, protects the fairness and transparency of the agency's adjudicatory process by placing certain restrictions on communications between the Commission and the NRC staff who are involved in the technical review of an issue that is being adjudicated within a contested proceeding—in this case, the Indian Point license renewal adjudication. The separation of functions rule is designed to prevent off the record communications on the merits of contested issues; however, the rule is not intended to prevent the NRC staff from communicating to the Commission or individual Commissioners matters unrelated to the specific issue that is the subject of a contested proceeding. The staff's April 19 briefings on the baffle-former bolt inspections were limited to a description of the baffle plates and bolts, applicable regulatory requirements, and current status of the inspection results at Indian Point Units 2 and 3. No prohibited communications took place, as the matters at issue in the adjudication were not discussed.

Requests for agency documents such as the one you made in your letter are appropriately directed to the agency's Freedom of Information Act (FOIA) process. However, in response to a recent FOIA request the NRC has made public documents that are also responsive to your request; courtesy copies of those documents are provided here.

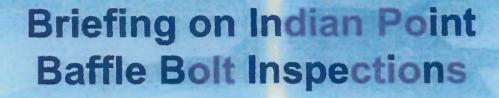
Finally, you request notice and an opportunity to attend future briefings of the Commission. The April 19 briefings were not "meetings" subject to the Sunshine Act because a quorum of Commissioners was not present for either briefing. As such, public notice was not required. The NRC will provide public notice of Commission meetings when required by law, but the Commissioners may receive additional non-public briefings as part of their obligation to supervise the NRC staff. Because the Commission continues to sit in a quasi-judicial capacity in the Indian Point license renewal proceeding, any such briefing will not address disputed issues in the license renewal proceeding.

A copy of your letter and this response will be served on the parties to the *Indian Point* license renewal adjudication.

Sincerely

Stephen G. Burns

Enclosures: As stated

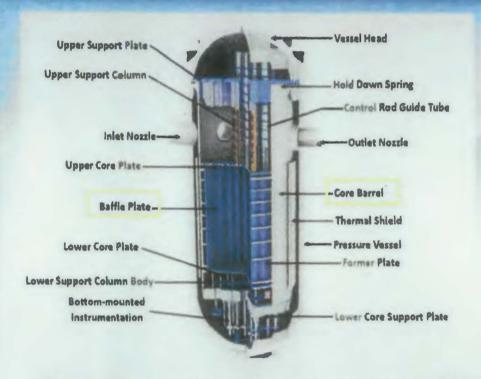


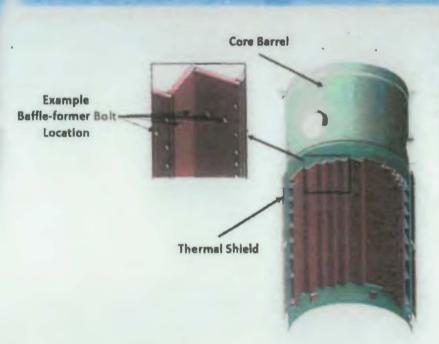
April 19, 2016

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Baffle-former assembly

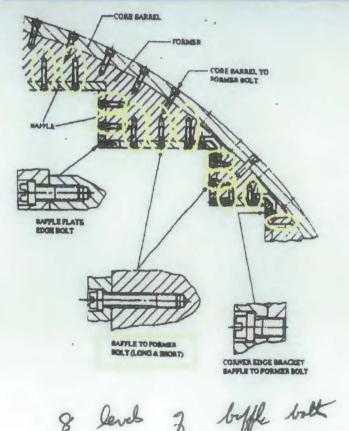




Function of baffle-former assembly is to direct coolant flow through the core. It also provides lateral support to the core during a seismic event or loss-of-coolant accident (LOCA).



Baffle-former bolts



Stainless steel bolts are 5/8" dia. x ~2" long and attach the baffle plates to the former plates to form the baffle assembly

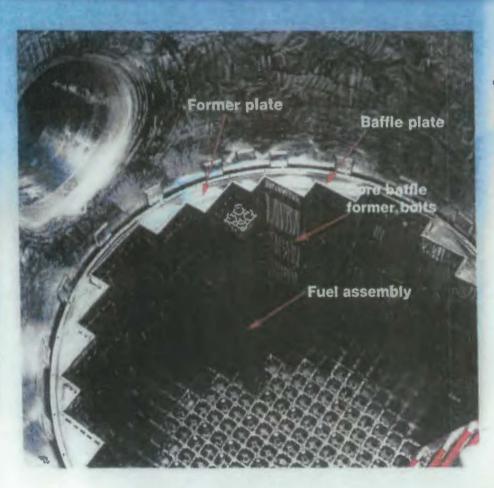
Baffle-former

bolt head Tack weld Locking tab

Protecting People and the Environment



Potential consequences



- No impact from a few bolt failures
- Large numbers of failed bolts could cause:
 - Flow leakage through gaps between adjacent plates
 - Fuel degradation (baffle jetting erosion)
 - Increased core bypass flow (less fuel cooling)
 - Baffle plates impacting fuel assemblies during LOCA event, potentially leading to grid deformation



Baffle-Former Bolt Inspections – Regulatory Basis – First 40 years

- 10 CFR 50.55a "Codes and Standards"
 - Incorporates by Reference ASME Code, Section XI
 - Section XI mandates general visual condition examination of reactor vessel internals (RVI) every 10 years
- All PWRs have been performing every 10 years during the first 40 years of operation



Baffle-Former Bolt Inspections Regulatory Basis – Period of Extended Operation

- Guidance for PWR RVI aging management program is based on NRC-approved topical report MRP-227-A
- To manage aging of RVI, IP2 committed to enhanced inspections following MRP-227-A, consistent with NRC guidance



MRP-227-A Inspection Requirements for Baffle-Former Bolts

- Ultrasonic (UT) Examination
- Initial (baseline) inspection between 25-35 effective full power years
- 100% of bolts
- Inspect every 10 years thereafter
- All PWRs with baffle-former bolts must perform these inspections (most PWR designs)

IPL soft



2016 Indian Point Results

Entergy Unit 2 Activities

- Conducted visual examination of 1232 baffle-edge bolts
- Conducted ultrasonic and visual examination of 832 baffleformer bolts
- Results:
 - All baffle edge-bolts were acceptable
 - (227)total baffle-former bolt identified as failed
 - 182 ultrasonic testing failures
 - 31 visually identified as protruding
 - 14 inaccessible, conservatively assumed failed
- Bolts to be sent out for analysis by Westinghouse and LPI, an independent engineering firm



2016 Indian Point Activities

Indian Point Unit 2 (IP2)

- Removing degraded bolts using mechanical extraction and Electrical Discharge Machining (EDM) tools
- Developing plans to replace baffle-former bolts
- Developing safety evaluation of as-found condition
- Developing analysis to support baffle-former assembly return to service (if not all bolts are replaced)

Indian Point Unit 3 (IP3)

- Developing evaluation of baffle-former assembly considering information from IP2
- Evaluating schedule for future baffle bolt examinations, currently planned in 2019



NRC Inspections to Ensure Safety Of Indian Point Unit 2

- Evaluated Entergy's Inservice Inspection to verify their examination methods/acceptance criteria were appropriate
- Baseline Inspections being planned and implemented to:
 - Verify Entergy completes bolt replacement and analyses that ensure the baffle-former assembly will perform intended safety functions
 - Review Entergy's evaluation of the as-found conditions to independently assess the safety significance and whether there were prior performance issues



NRC Inspections to Ensure Safety Of Indian Point Unit 3

- NRC staff's current assessment is that IP3 is safe to operate
 - Smaller number of failed bolts expected because:
 - IP3's baffle-former bolts are exposed to less radiation than those in IP2
 - Less operating time than IP2
 - No current indication of fuel leaks which would indicate significant problems with baffle-former bolts

Analysis for other Westinghouse plants have demonstrated significant margin regarding the total number of required bolts Will reassess IP3 functionality based on results of IP2 analysis currently in progress

- Resident Inspectors onsite to independently assess if conditions change
- NRC will review Entergy's evaluation of IP3 and their plans for future baffle-former assembly exams



Operating Experience – Inspection Results

- Only one plant found broken baffle-former bolts via Section XI visual inspections
- Over 12,000 baffle-former bolts ultrasonically inspected to date
- hat 22%

- Only 3.6% defective (potentially cracked)
- Excluding IP2 results, 2% defective
- Several plants of similar age or older to IP2 have inspected
- These older plants have found no more than 10% defective bolts

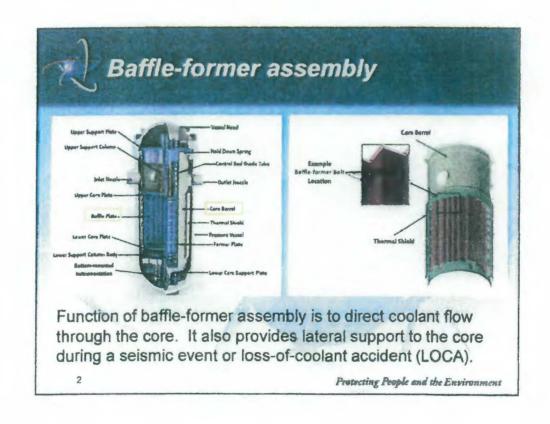


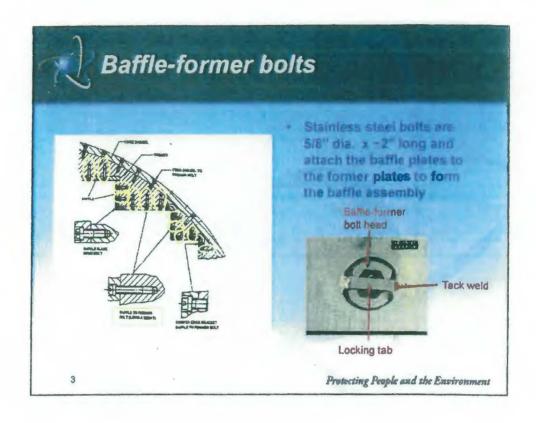
- Entergy will perform root cause analysis
- Results will be shared with the industry through the EPRI Materials Reliability Program (MRP)
- EPRI considers MRP-227-A a living program
- Changes can be made in response to operating experience

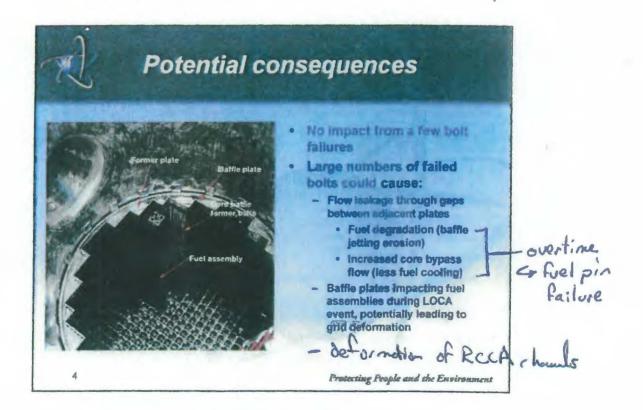


- Region I and NRR monitoring IP2 analysis, repair and root cause, and IP3 implications
- Decide if regulatory action needed based on:
 - Operating experience with baffle-former bolt inspections
 - IP2 root cause analysis results
 - Operability of IP2 under all design basis conditions with asfound defective bolts
- Potential actions could include acceleration of baseline inspection schedule, shorten reinspection interval, or no change
- Could implement through modification to guidance, or generic communication if warranted by safety impact











Baffle-Former Bolt Inspections – Regulatory Basis – First 40 years

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crecks are where shark attachs to head



Baffle-Former Bolt Inspections Regulatory Basis – Period of Extended Operation

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Protecting People and the Environment

Btw - different type of 55 not solf of bolld CE - call best 2 welder i-steed of bolld

2016 Indian Point Results

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- · Results:
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MRP 227 MRP 227 (12k belts To Jac 3.6% showing in

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Industry Response

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13

NRC Response

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Bloomer, Tamara

From: Cubbage, Amy

Sent: Thursday, April 21, 2016 10:00 AM

To: Ostendorff, William Cc: Bloomer, Tamara

Subject: FW: Updated Info on Indian Point

From: Bowen, Jeremy

Sent: Thursday, April 21, 2016 9:54 AM

To: Valliere, Nanette <Nanette.Valliere@nrc.gov>; Fuller, Justin <Justin.Fuller@nrc.gov>; Castleman, Patrick <Patrick.Castleman@nrc.gov>; Cubbage, Amy <Amy.Cubbage@nrc.gov>; Krsek, Robert <Robert.Krsek@nrc.gov>

Cc: Clark, Theresa < Theresa. Clark@nrc.gov>
Subject: Updated Info on Indian Point

Good morning all,

Region I held a call with Indian Point management yesterday to discuss the current status of the baffle bolts. Because there were some related questions during the briefings earlier this week, I'm passing along the latest information.

Unit 2

- The specialized tool is onsite and being used to replace the bolts
- Entergy plans to replace all 227 bolts that failed UT
- Current rate of replacement is 7-9 bolts per day
- The site will have access to the specialized tool for as long as needed

Unit 3

- Site senior management (Site VP) indicated their intent to move up inspection of U3 to the 2017 outage (from 2019)
 - o No formal public announcements or notifications about these plans have been made
 - Entergy needs to still line up resources to ensure the plan can be accomplished as desired

I'll keep you informed as things progress. Please let me know if you have any questions.

Thanks, Jeremy



May 17, 2016

Stephen G. Burns, Chairman Kristine L. Svinicki William C. Ostendorff Jeff Baran U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Re: Indian Point License Renewal Proceeding, Docket Nos. 50-247-LR, 50-286-LR

Dear Commissioners:

We support and applaud your interest in the safety issues raised by recent inspections at Indian Point Unit 2, which showed that over one-quarter of the baffle-former bolts within the plant's reactor core are degraded or missing. The continued supervisory engagement of the Commissioners on this important issue — which is unprecedented in the history of foreign and domestic nuclear plant operations — is vital for ensuring the safe operation of both Indian Point nuclear facilities, which are located 24 miles north of New York City and in the most densely populated area surrounding any nuclear facility in the nation.

While we are heartened to know of the Commissioners' attention to these safety issues at Indian Point, we write to remind you that your supervisory activities must comply with NRC regulations for the fair conduct of NRC adjudicatory proceedings, including the prohibition against ex parte conducts on relevant issues. See generally 10 C.F.R. §§ 2.347, 2.348; 5 U.S.C. § 557. We are particularly concerned that on April 19, 2016, NRC Commissioners and/or their Senior Executive Staff received two briefings from NRC Staff about the recent inspections at Indian Point Unit 2 and the safety implications of these results for both Indian Point Unit 2 and Indian Point Unit 3. Although Riverkeeper is a party to the on-going relicensing proceeding for Indian Point and has relevant contentions pending before the agency, we did not learn of the briefings until a week later via a letter from NRC Staff counsel to the Atomic Safety and Licensing Board ("ASLB"). See Letter from NRC Staff Counsel Sherwin E. Turk to ASLB Judge Lawrence G. McDade, et al. re: Entergy Nuclear Operations, Inc. (Apr. 26, 2016) (and two attachments thereto).

NRC Staff is a party and litigant in the Indian Point adjudicatory proceeding. See NRC Staff's Statement in Response to the Atomic Safety and Licensing Board's Order of February 3, 2012 (Feb. 8, 2012) (ML12039A298). Thus, contacts between NRC adjudicatory employees (including the Commission and its staff) and the NRC Staff are subject to the NRC's ex parte rules. See Philadelphia Electric Co. (Limerick Generating



Station, Units 1 and 2), ALAB-785 20 NRC 848, 883 n.161 (1984). While certain communications solely between NRC adjudicatory employees and NRC Staff may be permissible (i.e., communications relating to generic issues or providing mere status updates), NRC Staff counsel's April 26 letter includes two attachments which suggest that NRC Staff's April 19 briefings covered more substantive issues that are directly relevant to Riverkeeper's pending contentions. See Memorandum from Jeremy S. Bowen to Houman Rasouli re: Summary of April 19, 2016 Briefings for the Commissioners on Indian Point Baffle Bolts (April 22, 2016); Briefing on Indian Point Baffle Bolt Inspections (April 19, 2016). Therefore, we respectfully submit that the Commission should have provided the parties to this proceeding with notice of the briefing and an opportunity to attend or participate.

We appreciate receiving from NRC Staff counsel the Staff-generated documents provided at the April 19 briefing. In order to ensure the full provision of available information regarding the briefings, we also request you to provide any relevant Commission-generated documents that may not have been provided to Staff counsel, including any transcripts, recordings, or summaries of the briefings.

Finally, we request you to provide reasonable advance notice of and opportunity to attend or participate in any future briefings of the Commissioners on important issues relevant to the resolution of the contentions at issue – including any assessments of the significance of the bolt failures at Indian Point Unit 2 and/or the implications for operational safety at both Unit 2 and Unit 3.

Sincerely,

[Electronically signed by]
Paul Gallay

[Electronically signed by]
James Bacon

Counsel to Riverkeeper

cc: Service List



UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

In the Matter of)	
ENTERGY NUCLEAR OPERATIONS, INC.)	Docket Nos. 50-247-LR and 50-286-LR
(Indian Point Nuclear Generating, Units 2 and 3))	
Office 2 and 3)	,	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Correspondence from the Office of the Secretary in Response to May 17, 2016 Riverkeeper Letter Regarding Baffle-Former Bolts have been served upon the following persons by Electronic Information Exchange.

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Docket Nos. 50-247-LR and 50-286-LR

Correspondence from the Office of the Secretary in Response to May 17, 2016 Riverkeeper Letter Regarding Baffle-Former Bolts

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Docket Nos. 50-247-LR and 50-286-LR

Correspondence from the Office of the Secretary in Response to May 17, 2016 Riverkeeper Letter **Regarding Baffle-Former Bolts**

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Laura Heslin, Esq. **Assistant Attorney General** Office of the Attorney General of the State of New York 120 Broadway, 26th Floor New York, New York 10271 laura.heslin@ag.nv.gov

Sean Murray, Mayor Kevin Hay, Village Administrator Village of Buchanan Municipal Building 236 Tate Avenue Buchanan, NY 10511-1298 smurrav@villageofbuchanan.com administrator@villageofbuchanan.com

[Original signed by Brian Newell] Office of the Secretary of the Commission

Dated at Rockville, Maryland this 4th day of August, 2016