

May 24, 2016

**BEFORE THE UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

**FRIENDS OF THE EARTH’S EMERGENCY PETITION TO PROHIBIT RESTART  
OF INDIAN POINT UNIT 2 AND INSPECT INDIAN POINT UNIT 3**

On March 29, 2016, Entergy discovered that over one-quarter of stainless steel bolts holding together metal plates inside Indian Point Unit 2’s reactor core—bolts that play a vital safety role by ensuring that coolant continues to flow through the reactor—were damaged, degraded, or otherwise failed. Some of these bolts were discovered to be missing entirely and, presumably, were floating around the inside of the reactor vessel. The regulator’s response so far to this increased risk to public health and safety is to allow *Entergy*, the licensee and regulated party, free rein to decide whether and to what extent it should analyze the cause of the failure, and to determine when, in *Entergy’s* opinion, the plant is safe to restart. To remedy this lapse in regulatory oversight in the face of a major failure affecting the safety of operating Indian Point, Friends of the Earth (“Friends”) asks the Commission to (1) prohibit the restart of Unit 2 until the Commission is satisfied that the unit can be safely restarted, and (2) order the immediate shutdown of Unit 3 so that the baffle-former bolts in that unit may be inspected.

## **I. Introduction**

The discovery by Entergy, the owner and operator of Indian Point, that approximately 227 of 832 baffle-former bolts in Unit 2, or over one-quarter of the baffle-former bolts at Unit 2, were degraded or missing entirely, is a major failure that affects the safety of operating Indian Point 2. Baffle-former bolts (“bolts”) serve an integral plant safety function by holding together metal plates that direct cooling water flow through the reactor core. Failure of these bolts could allow baffle plates to gap or separate, depriving the core of necessary cooling water and potentially resulting in a meltdown.

The failure of 227 baffle-former bolts at Unit 2 is, by far, the most widespread failure to have occurred in any nuclear power plant in the U.S. NRC, An Outage Twist: Degraded bolts and New York Nuclear Plant Warrant Attention, [https://public-blog.nrc-gateway.gov/2016/04/27/an-outage-twist-degraded-bolts-at-new-york-nuclear-plant-warrant-attention/](https://public-blog.nrc.gov/2016/04/27/an-outage-twist-degraded-bolts-at-new-york-nuclear-plant-warrant-attention/) (Apr. 27, 2016). The response of the NRC Staff (“Staff”) to date has been inadequate to ensure that Indian Point can continue to operate safely. No analysis has been conducted by the NRC regarding the cause of the bolt degradation, how or why some bolts went missing, and how long Unit 2 has been operating with over one-quarter of its baffle-former bolts degraded or missing entirely. The dangers posed by such a deficiency are potentially catastrophic.

Equally important, no analysis has been conducted regarding whether similar problems are present at Indian Point Unit 3, the sister unit of Unit 2. While Unit 2 remains shut down for repairs, Unit 3 continues to operate, with no plans to inspect Unit 3 for baffle-former bolt degradation until next year. The Staff has so far offered only bare and unsupported assumptions about Unit 3 to support its opinion that bolt degradation will be less pervasive than in Unit 2. But although Unit 3’s baffle-former bolts are of a slightly different design, no evidence has been

offered to support the conclusion that they do not suffer from the same problem. Indeed, based on what has been made available to date, there is no reason not to conclude that the different design may make baffle-former bolt failure *more* likely. The Staff has conducted no analysis or inspection to discount this possibility, choosing instead to presume continued safety until the scheduled inspection in 2017.

Entergy has indicated that it currently expects to restart Unit 2 in late June. Given the importance and time-sensitive nature of the issue, Friends requests that the Commission immediately issue an order preventing restart of Unit 2 until the Commission concludes, based on its own investigation, that the unit can be safely operated. If consideration of the petition is delayed until after Unit 2 restarts, Friends will be effectively denied the relief it seeks through this process. In the event the Commission refers this petition to the Staff for consideration, Friends requests that the Commission grant interim relief by issuing an order preventing restart of Unit 2, and directing the immediate shut down and inspection of Unit 3, until this petition is finally adjudicated.

## **II. Background**

Indian Point is a two-unit nuclear generating station located in Buchanan, New York, approximately 26 miles north of New York City. Units 2 and 3 were licensed in 1973 and 1975, respectively. In September 2013 and December 2015, the plant's licenses expired. Indian Point continues to operate pursuant to NRC regulations allowing a nuclear power plant to continue operating on a provisional basis if the licensee has filed a timely application to renew the plant's operating license. *See* 10 C.F.R. § 2.109(b). This provision was intended to allow for a plant's license to remain in effect during the 18 to 24 months expected for NRC review to complete, or approximately 30 months where a hearing on the application is granted. NRC, Indian Point

Timely Renewal, <http://www.nrc.gov/info-finder/reactors/ip/ip-timely-renewal.html>. Nine years after Entergy filed its license renewal application, the application remains pending today in the face of serious allegations of deficiencies raised by the State of New York and Riverkeeper in the proceeding before an Atomic Safety and Licensing Board (ASLB).

A. Baffle-former bolts

Indian Point Units 2 and 3 are Westinghouse pressurized water reactors. Each reactor contains hundreds of baffle-former bolts, which are stainless steel bolts approximately 5/8" in diameter and 2" long that hold the baffle plates to the former plates to form the baffle/former assembly. The baffle/former assembly forms the interface between the reactor core and the reactor core barrel, as shown in Figure 1, below.

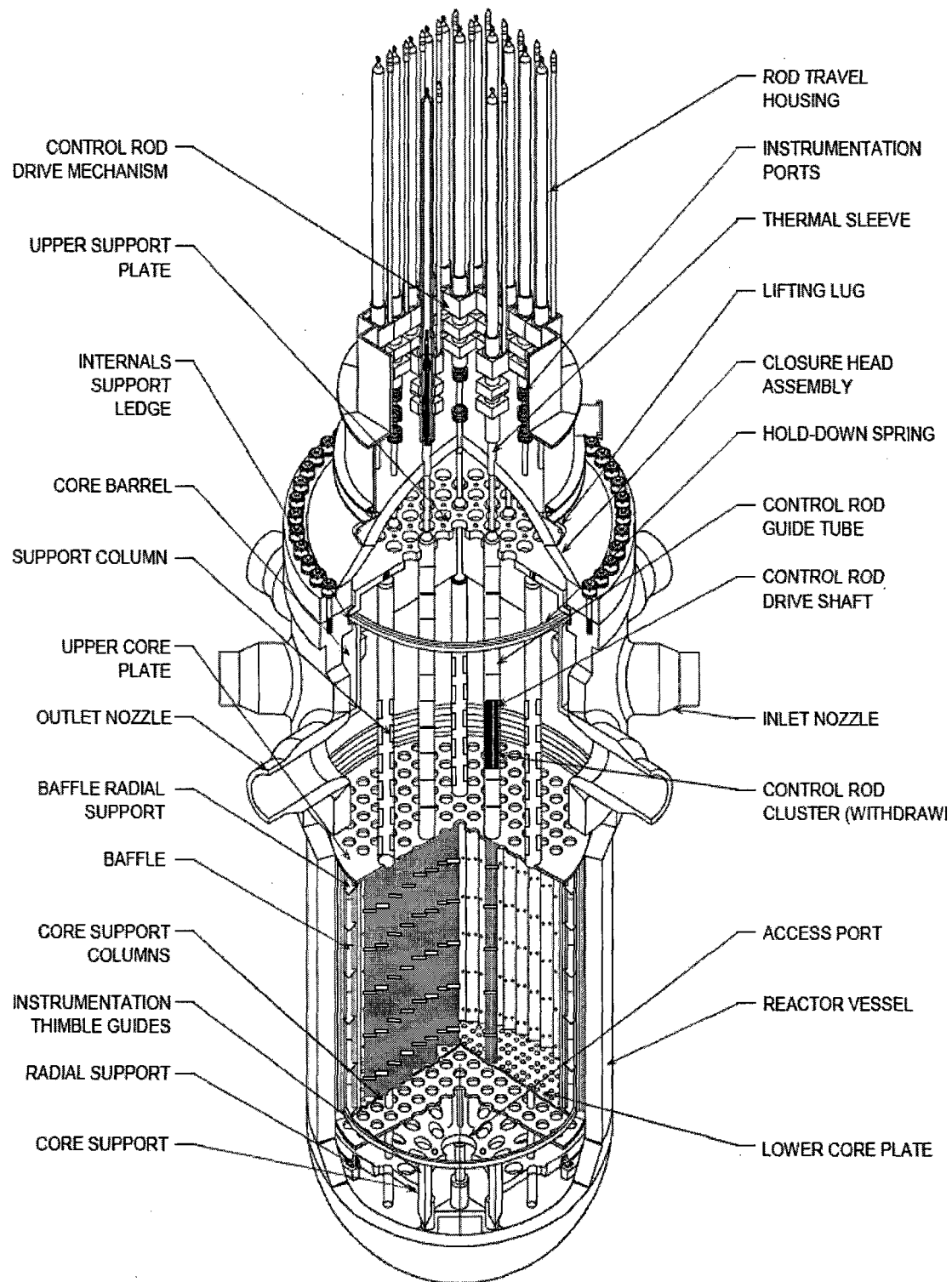


Figure 1 – typical Westinghouse reactor vessel internals (source: ML15331A179)

The bolts have a number of important safety-related functions. The baffles provide a barrier between the reactor core and the former to direct coolant flow through the reactor core. The bolts also provide lateral support to the reactor core during an earthquake or a loss-of-coolant accident and reduce neutron flux on the vessel, as shown in Figure 2, below.

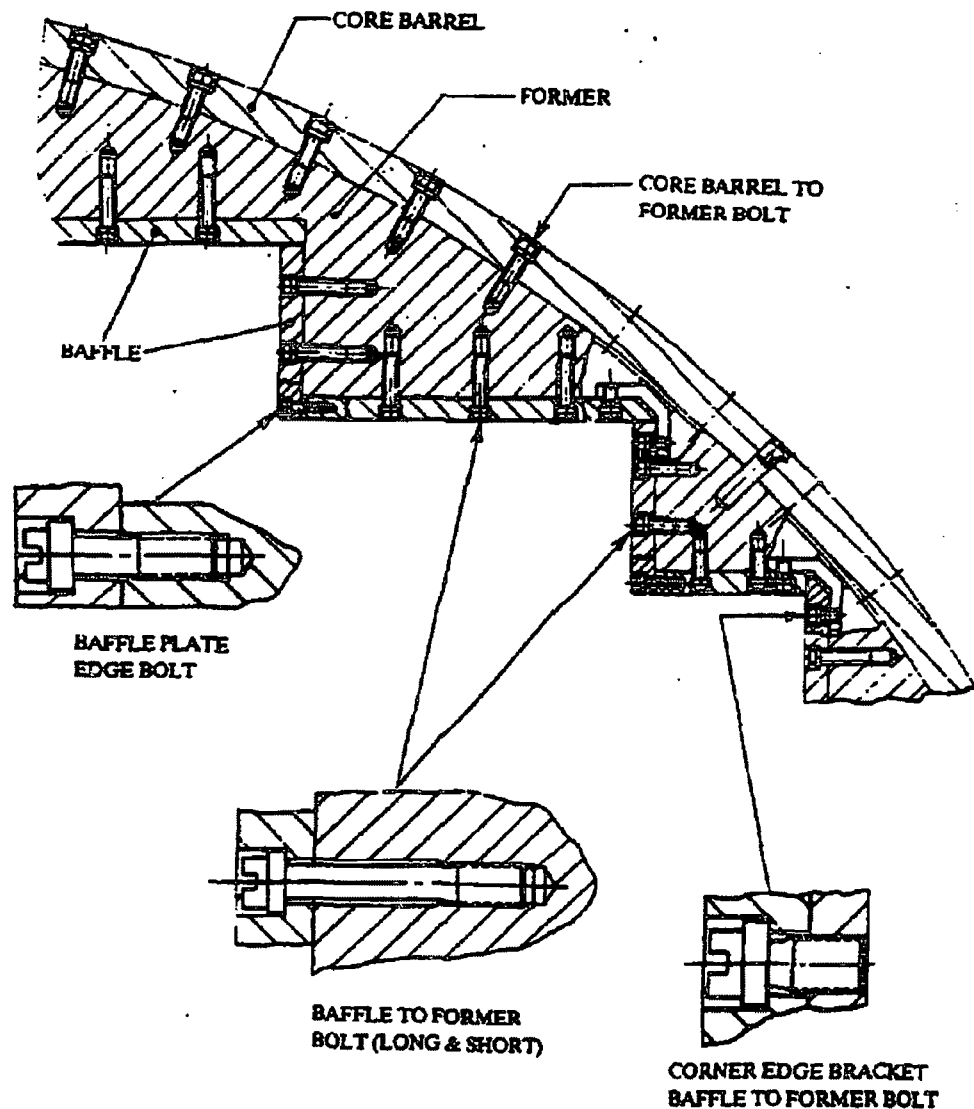


Figure 2 – bolt locations in typical Westinghouse baffle-former-barrel structure  
(source: ML15331A179)

Failure of baffle-former bolts could cause coolant to leak through gaps between adjacent baffle plates, providing pathways for coolant to bypass the reactor core, potentially leading to a core meltdown. NRC Briefing of Commissioners on Indian Point Baffle Bolt Inspections (Apr. 19, 2016) at 4 (“NRC Slides”).<sup>1</sup> Degraded or missing bolts can also impede the assurance of core safety during an earthquake.

B. Inspection of baffle-former bolts at Indian Point

Entergy’s discovery that over one-quarter of Unit 2’s baffle-former bolts were missing or degraded might never have occurred but for concerns raised by the State of New York regarding the safety demonstrations in Indian Point’s license renewal application. Before the March 2016 inspection, NRC regulations required only “general visual examinations” of the reactor vessel internals, taken collectively, every 10 years. *See* 10 C.F.R. § 50.55a (incorporating by reference American Society of Mechanical Engineers (ASME) Code, Section XI); NRC Slides at 5. It is now clear that visual inspection, the method prescribed by the ASME procedure, was woefully inadequate to detect baffle-former bolt degradation, having resulted in only a single discovered instance of a plant containing degraded bolts. NRC Slides at 12.

In 2007, New York filed contentions in the contested portion of the license renewal proceeding, maintaining that Entergy’s license renewal application did not adequately demonstrate that baffle-former bolts in both units would continue to perform their safety functions during the license extension period. NRC and Entergy opposed the contentions in litigation before an Atomic Safety and Licensing Board.

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<sup>1</sup> These slides were released to the public as an attachment to a letter notifying the ASLB of a change of NRC counsel telephone numbers. *See* Letter from Sherwin Turk to Atomic Safety and Licensing Board (Apr. 26, 2016) (ML16117A549).

But in July 2010, Entergy amended its license renewal application to commit to a new program to inspect the reactor vessels and their internal components (including inspection specifically of baffle-former bolts) using guidance developed by the Electric Power Research Institute (EPRI). The EPRI guidance provides for periodic visual and, more importantly, ultrasonic examination of baffle-former bolts. Under the EPRI procedure, licensees must conduct a baseline visual examination of baffle-former bolts between 20 and 40 effective full-power years, and subsequent visual examinations every ten years. EPRI, Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines (MRP-227-Rev. 0) (Dec. 2008) (ML090160206) at 4-24. For the first time, the guidance also required licensees to conduct ultrasonic examinations between 25 and 35 effective full-power years, with a subsequent examination after 10 to 15 additional effective full-power years to confirm stability of the bolting pattern. Limited ultrasonic examinations must be performed on a ten-year interval thereafter. In July 2011, the NRC directed all licensees, regardless of whether the licensee has received a license renewal, has an application pending before NRC, or has not yet filed an application, to comply with the EPRI guidance regarding inspection of reactor vessel internals. NRC Regulatory Issue Summary 2011-07 (July 21, 2011) (ML111990086).

The March 2016 ultrasonic inspection that discovered significant baffle-former bolt degradation in Unit 2 was conducted according to the new EPRI procedure, which has proved far more effective at exposing bolt degradation than the older visual inspection procedure. Of the baffle-former bolts that have been inspected under the ultrasonic method, approximately 3.6% were classified as degraded. NRC Slides at 12. Compared to visual inspections, which discovered only a single instance of degraded bolts, ultrasonic inspections have resulted in more discoveries of bolt degradation.



C. March 2016 inspection of Unit 2's baffle-former bolts

During a refueling and maintenance outage that began on March 7, 2016, Entergy discovered that 227 of 832 baffle-former bolts had failed. According to Entergy, this failure included "missing bolts, and bars meant to hold them in place, and other degradation requiring replacement of the bolts." Letter from Paul M. Bessette to Atomic Safety and Licensing Board, Docket Nos. 50-247-LR and 50-286-LR (Mar. 29, 2016) (ML16089A496) at 1-2 ("Entergy Notification Letter"). Of the 227 degraded bolts, 182 bolts failed ultrasonic testing, 31 bolts were protruding, and 14 bolts were "inaccessible." NRC Slides at 8. Unit 2 remains shut down as of the filing of this petition.

On March 29, 2016, Entergy notified the ASLB presiding over the plant's license renewal proceeding of the results of its inspection. In its notification letter, Entergy noted that it had "entered the inspection findings in its Corrective Action Program and is taking appropriate corrective measures, including the conduct of a root cause analysis." Entergy Notification Letter at 2. On March 30, 2016, in light of the inspection findings, the parties jointly requested the ASLB to temporarily defer certain post-hearing submissions and findings regarding these contentions. Joint Motion for Track 2 Hearing Schedule Deferral, Docket Nos. 50-247-LR and 50-286-LR (Mar. 30, 2016) (ML16090A356). On May 6, 2016, the parties submitted a joint status report regarding these contentions. Entergy asserted that it "has begun work" at Unit 2 to replace affected baffle-former bolts and "is conducting a root cause analysis of the IP2 baffle-former bolt findings and preparing related technical analyses in support of IP2's return to service." Joint Status Report Regarding Track 2 Schedule Deferral, Docket Nos. 50-247-LR and 50-286-LR (May 6, 2016) (ML16127A386) at 1, 2. Entergy did not provide any information regarding the scope or deliverables involved in such an analysis, nor state that Unit 2 will not

restart until these analyses are completed, let alone that repairs would be conducted on the basis of those findings. Similarly, the Staff has not indicated that it will review or approve this root cause analysis or condition restart of Unit 2 on its approval of the analysis. The Staff stated only that it “plans to discuss this matter in its quarterly inspection reports” for Units 2 and 3. *Id.* at 2. As of the time of this petition, little information beyond that in this filing has been released to the public.

After extensive bolt degradation was discovered in Unit 2, Entergy determined to move the inspection of Unit 3 to 2017, two years earlier than originally planned in 2019. Platts, *Indian Point-3 bolt inspection now set for 2017, NRC spokesman says* (May 9, 2016), available at <http://www.platts.com> (subscription required). This change, which was made without explanation, confirms that Entergy regards Unit 2’s bolt degradation as posing a serious safety issue. Yet, there has been no indication—from either Entergy or the Staff—that baffle-former bolts in Unit 3 will be inspected before then, and no reason has been given as to why delaying inspection until 2017 is appropriate. Meanwhile, Unit 3 continues to operate despite significant concerns that similar bolt degradation may be present in that reactor.

### **III. The Commission Should Take Action to Require Entergy to Ensure Baffle-Former Bolt Degradation at Indian Point Units 2 and 3 Does Not Pose a Significant Threat to the Public Health and Safety Prior to Restarting**

The failure of over one-quarter of a reactor’s baffle-former bolts is unprecedented in the industry. According to the Staff, of the approximately 12,000 baffle-former bolts that have been ultrasonically inspected industry-wide to date, the average failure rate is approximately 2%. NRC Slides at 12. No single plant has had a failure rate of more than 10%, a percentage dwarfed by Unit 2’s 27.2% failure rate. *Id.* The risks of operating with over one-quarter of a unit’s bolts failed or missing have therefore never been encountered in a real-world context.

This failure poses a significant risk to the public health and safety. The potential consequences of operating with a significant portion of failed or missing bolts are grave. They include:

1. Baffle and former plates may become separated, preventing proper flow of coolant through the reactor and potentially causing a meltdown.
2. Broken pieces of metal may damage the nuclear fuel, causing a fuel leak and release of radiation into the environment, necessitating an evacuation.
3. Metal fragments may damage the control rods, making it difficult or impossible to shut down the nuclear reactor.
4. Floating shrapnel may clog a fuel channel, causing nuclear fuel to overheat.
5. Floating shrapnel may damage the impeller of the reactor coolant pumps, causing them to vibrate and develop dangerous oscillations in reactor coolant flow.

Each of these potential failure modes presents a serious health and safety risk. Since the risks are additive, together they pose an even more grave threat to the public health and safety.

Despite these risks, neither the Commission, the Staff, nor the licensee has adequately investigated the baffle-former bolt degradation at Unit 2 and, in particular, why the extent of bolt degradation in Unit 2 so far exceeded degradation at other plants. Although Entergy has stated that it plans to conduct a root cause analysis, neither the company nor the NRC has said that Unit 2 will be kept off line until the analysis has been submitted to and approved by the Staff or the Commission. Instead, the Staff's response to the issue has been entirely passive. The Staff has established no minimum scoping requirements for the root cause analysis and has not required that the analysis be submitted to the agency for approval prior to restart. Instead, the agency has continued to allow Entergy, the regulated party, to determine the proper response to the issue.

Moreover, the agency's response has been remarkable for its lack of transparency. According to information publicly available on the issue, the NRC has not engaged in any active or direct way with Entergy. Rather, the little information made available to the public has been through agency blog posts, interviews, and statements in a joint status update filed by the licensee in the license renewal proceeding, rather than through direct and transparent engagement with the licensee. The Commission, therefore, should take action to ensure that baffle-former bolt degradation at Units 2 and 3 do not pose a hazard to the public health and safety.

A. The Commission has authority to prohibit restart of Unit 2 and shut down Unit 3.

The Commission has the statutory authority to step in and ensure that the root cause of the baffle-former bolt degradation is determined and appropriate corrective action taken before Unit 2 restarts. Section 161 of the Atomic Energy Act, 42 U.S.C. § 2201, grants the Commission the authority to prescribe all "orders as it may deem necessary . . . to govern any activity authorized pursuant to this chapter . . . in order to protect health and to minimize danger to life or property." 42 U.S.C. § 2201(i)(3). The scope of this authority undoubtedly includes the authority to prevent Unit 2 from restarting until the Commission is satisfied that the unit can safely operate.

The Commission, or the Staff as its delegate, has taken action in past similar situations to require a licensee to conduct a root cause analysis of certain plant equipment degradation, and to require NRC approval before a plant can restart. Consistent with these past actions, the Commission should not permit restart of Unit 2 until it is satisfied that the unit can operate safely.

- In May 2012, for example, after cracking was discovered in certain concrete structures at Seabrook Nuclear Power Plant, the Staff issued a Confirmatory Action Letter (CAL) confirming the licensee's commitments to conduct and submit a root cause analysis, submit a corrective action plan to prevent further cracking, conduct additional short- and long-term testing, and take other measures. CAL 1-2012-002 (May 16, 2012) (ML12125A172).
- In January 2012, after steam generator tube damage was discovered during a planned outage at San Onofre Nuclear Generating Station, the Staff required the licensee to conduct a root cause analysis, implement actions to prevent the damage from recurring, submit the results of the analysis to the Staff, and secure the NRC's approval before restarting the plant. CAL 4-12-001 (Mar. 27, 2012) (ML12087A323).
- In August 2002, the Staff required the licensee for Davis-Besse Nuclear Power Station to determine the root cause of reactor pressure vessel head degradation and meet with the Staff to discuss that information. The Staff required the licensee to obtain its approval regarding any repair or modification necessary to address the degradation before the licensee could restart the plant, as well as discuss with the Staff the root cause determination, extent of condition evaluations, and corrective actions completed and planned to repair the damage and prevent recurrence. CAL 3-02-001 (Mar. 13, 2002) (ML020730225).

Similarly, the Commission has granted relief requested in emergency petitions in the past in numerous circumstances. In 1978, for example, upon the filing of an emergency petition requesting the Commission to direct the Staff to take action related to fire protection for

electrical cables, the Commission granted the petition in part and directed the Staff to take a number of safety-related actions. *In re Petition for Emergency and Remedial Action*, CLI-78-6, 7 NRC 400 (1978). In 1991, in response to an emergency petition to shut down Yankee Rowe Nuclear Power Plant and take other actions due to embrittlement of reactor vessel steel, the Commission directed the licensee to submit documentation regarding its safety evaluation and to take other actions. *Yankee Atomic Electric Co. (Yankee Rowe Nuclear Power Station)*, CLI-91-11, 1991 WL 203252 (1991). The Commission also directed the Staff to “closely monitor” its compliance with the Commission’s order and obtain monthly reports from the licensee. *Id.* at \*13. The Commission, recognizing that the petition was filed initially with the Commission “[b]ecause of th[e] perceived failure by the Staff to exercise its responsibility to assure compliance with NRC regulations,” decided to adjudicate the petition itself “rather than leave the decision to the Director of NRR.” *Id.* at \*2. *See also Union Electric Co. (Callaway Plant, Unit 2), et al.*, CLI-11-05, 2011 WL 4027741 (2011); *U.S. Energy Research and Dev. Admin. Project Mgmt. Corp. (Clinch River Breeder Reactor Plant)*, CLI-76-13, 4 NRC 67 (1976); *Consolidated Edison Co.*, CLI-75-8, 2 NRC 173 (1975) (noting that although the petition at issue ought to have been filed pursuant to 10 C.F.R. § 2.206, “procedural forms . . . are not fetishes” and adjudicating the petition because “the issues are pressing enough for all parties, and important enough for the public safety, that they should not be further delayed”); *Consumers Power Co. (Midland Plant, Units 1 and 2)*, CLI-73-38, 6 AEC 1082 (1973).

These examples indicate that the Commission has the statutory authority to step in and confirm Entergy’s responsibilities to mitigate and prevent bolt degradation at Indian Point. Consistent with these examples, the Commission should issue an order prohibiting restart of Unit 2 until it is satisfied that the unit can be safely operated.

B. The Commission should exercise this authority to prohibit restart of Unit 2 and shut down Unit 3.

A comprehensive root cause analysis is vital to ensuring that Unit 2's baffle-former bolt degradation does not recur in Unit 2, and has not occurred or will not occur in Unit 3. Without a comprehensive root cause analysis of the bolt failures at Unit 2, including a demonstration that similar degradation will not recur in the future, restarting Unit 2 poses a significant and unanalyzed safety risk. Accordingly, the Commission should immediately order Unit 2 to remain shut down until Entergy has (1) conducted a comprehensive root cause analysis that has been submitted to, reviewed, and approved by the NRC; (2) demonstrated that baffle-former bolt degradation is not likely to recur in Unit 2; (3) located all bolts and bolt fragments that were identified as missing during the March 2016 inspection; and (4) the Commission is satisfied that the plant is safe to restart.

A comprehensive root cause analysis of the bolt degradation in Unit 2 should address a number of issues, including but not limited to:

- Explaining the mechanism causing bolt degradation;
- Location within the reactor vessel of each degraded bolt in Unit 2;
- Potential for bolt degradation to recur in both the short and long term in Unit 2;
- Design of bolts;
- Impact of neutron flux on bolts;
- State of threaded holes into which baffle-former bolts are inserted;
- Metal Impact Monitoring System, which is intended to detect loose baffle-former bolt parts within the reactor vessel; and
- Potential need for inspections in addition to EPRI guidance.

Analysis of these issues and fulfilling other conditions outlined above before Unit 2 is restarted is necessary to ensure that baffle-former bolt degradation will not present future safety risks.

These measures are required by NRC regulations providing that certain actions must be taken in response to plant equipment failures. Appendix B to Part 50 of NRC regulations establishes eighteen “quality assurance criteria” for nuclear power plants. Criterion XVI, “Corrective Action,” provides:

Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. *In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.* The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management.

10 C.F.R. Part 50, Appx. B (emphasis added). As a risk management matter, it is imperative that a root cause analysis be conducted while Unit 2 is not generating to allow for informed corrective action. Permitting Unit 2 to restart before the analysis is complete could lead to exacerbation of an already significant problem and would place operational concerns above the public safety.

Similarly, a comprehensive root cause analysis of the bolt degradation at Unit 2 will ensure that similar degradation is not present, and will not occur in the future, at Unit 3. Allowing Unit 3 to continue operating before the root cause of degradation at Unit 2 is fully understood presents undue and unnecessary significant safety risks. These risks can be addressed only with a complete understanding of the root cause of bolt degradation in Unit 2 and an ultrasonic inspection of the bolts in Unit 3. Given that ultrasonic inspection only recently replaced visual inspection as the approved method for inspection of baffle-former bolts, it



appears substantially likely that past visual inspections have failed to detect similarly high numbers of damaged, degraded, or otherwise failed bolts at Unit 3, as well as other plants. Immediate further inspection is therefore necessary to determine whether baffle-former bolt degradation is present in Unit 3.

The Staff's current passive approach amounts to an abdication of its duty to ensure that operations do not pose an undue risk to the public health and safety. The Commission has a number of tools at its disposal to ensure that restart of Unit 2 and continued operation of Unit 3 do not pose a risk to health and safety. Such actions may include issuance of a CAL, an administrative action generally in the form of a letter issued to a licensee to emphasize and confirm a licensee's agreement to take certain actions in response to specific issues. *See* NRC Enforcement Manual (Sept. 9, 2015) at 196. The Commission's policy provides a non-exhaustive list of actions for which the issuance of a CAL is appropriate. This list, which shows that initiation of the CAL process would be appropriate in this matter, includes:

- Root cause failure analyses
- Equipment maintenance
- Equipment operation and safety verification
- Licensee's agreement to NRC approval prior to resumption of licensed activities

NRC Enforcement Manual at 197. Each of these four types of examples is implicated in Indian Point's baffle-former bolt degradation.

The Commission could also direct the Staff to dispatch an inspection team to formally investigate the baffle-former bolt failures at Unit 2. As of the date of this filing, the NRC has conducted no formal inspection of the nature of baffle-former bolt degradation at Unit 2, leaving mitigation of the problem almost entirely to the licensee.

The NRC's Incident Inspection Program provides for a number of different types of inspection teams, which are dispatched depending on how much the risk of core damage, or

“conditional core damage probability,” has increased due to the incident. An Incident Investigation Team (IIT) is dispatched in response to the highest-risk incidents involving a “significant event,” while an Augmented Inspection Team (AIT) is dispatched for a “significant event” when the risk increase is less than that requiring an IIT. A Special Inspection Team, the team that is dispatched for the lowest-risk incidents, responds to non-“significant events.” *See* NRC Directive and Handbook 8.3 (June 25, 2014) (ML13175A294) at 2-3. A significant event is “any radiological, safeguards, security or other event at an NRC-licensed facility that poses an actual or potential hazard to public health and safety, common defense and security, property, or the environment.” Directive and Handbook 8.3 at 3. In accordance with the NRC Incident Inspection Program, the Commission should dispatch a team to further study the baffle-former bolt degradation in Unit 2.

The Commission could direct the Staff to issue a Demand for Information directing Entergy to provide certain information regarding the cause, location, and implications of bolt failures at Unit 2, as well as the potential that similar degradation is present in Unit 3. A Demand for Information would aid the Commission in its investigation of whether Unit 2 can safely restart and whether Unit 3 should be immediately shut down for inspection. Pursuant to 10 C.F.R. § 2.204, the Commission is authorized to issue to a licensee a “demand for information for the purpose of determining whether an order under § 2.202 should be issued, or whether other action should be taken.” 10 C.F.R. § 2.204(a). Section 2.202, in turn, authorizes the Commission to institute proceedings to determine whether to modify, suspend, or revoke a license, or take other enforcement actions. The Commission should exercise its authority under section 2.204 to provide information to the public regarding the safety implications of Indian Point’s bolt failures, including, but not limited to, answers to the following questions:

1. What is the root cause of baffle-former bolt degradation in Unit 2?
2. What is the location within the reactor vessel of each degraded bolt in Unit 2?
3. What steps are being taken to ensure recovery of all missing bolts or bolt fragments?
4. What steps are being taken to ensure that bolt degradation will not recur?
5. What is the state of the threaded holes into which baffle-former bolts are inserted?
6. Did the plant's Metal Impact Monitoring System detect loose baffle-former bolt parts within the reactor vessel? If not, why not?
7. What evaluation method is in place to assure that loose bolt parts remaining inside the operating reactor will not damage fuel rods, steam generator tubes, or other safety components?
8. How many degraded bolts can safely be tolerated before the integrity of the baffle-former assembly is compromised?

Additionally, Entergy should provide information regarding the condition of baffle-former bolts in Unit 3. Since Unit 3's bolts appear to have never been ultrasonically inspected, virtually no information is available to support the assumption that Unit 3's baffle assembly is sound. Entergy therefore should be required to answer the following questions:

9. What steps are being taken to ensure that similar bolt degradation has not occurred in Unit 3?
10. Which, if any, design differences or other factors make similar bolt degradation less likely in Unit 3 than in Unit 2? More likely?
11. What evidence supports the determination that these design differences or other factors make bolt degradation less likely?

As the Staff has recognized, the amount of bolt degradation at Unit 2 is far and away the highest ever observed in a nuclear power reactor, raising significant safety questions. A Demand for Information intended to aid in determining whether further investigation is necessary, in conjunction with other relief requested in this petition, is one appropriate way to adequately answer these questions.

#### **IV. Request for Relief and Expedited Consideration**

Entergy has indicated that it intends to restart Unit 2 in late June, making expedited consideration of this petition a necessity. Given the importance and time-sensitive nature of this request, Friends respectfully requests that the Commission immediately issue an order preventing restart of Unit 2 until the Commission concludes, based on its own investigation, that the plant can be safely operated. If consideration of the petition is delayed until after Unit 2 restarts, Friends will be effectively denied the relief it seeks through this process. If the Commission refers this petition to the Staff for consideration, Friends requests that the Commission grant interim relief by issuing an order preventing restart of Unit 2 while this petition is adjudicated.

#### **V. Conclusion**

For the foregoing reasons, the Commission should exercise its authority to immediately prohibit restart of Unit 2 and order the shut down and inspection of Unit 3 until the Staff and Entergy (1) ensure that the baffle-former bolt failures in Unit 2 are mitigated; (2) study the cause of the failures; (3) ensure that the failures will not recur at Unit 2; and (4) determine whether the same failures are present at Unit 3, which has nearly the same design as Unit 2. The Commission should not permit restart of Unit 2 until it is satisfied that the unit can operate safely.

Date: May 24, 2016

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, Jessica Olson, certify that a copy of the foregoing Emergency Petition to Prohibit Restart of Indian Point Unit 2 and Inspect Indian Point Unit 3 was served on each of the following by electronic mail on May 24, 2016:

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/s/ Jessica Olson  
Jessica Olson  
*Counsel for Friends of the Earth*

## CHAIRMAN Resource

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**From:** Jessica L. Olson <olsonj@ayreslawgroup.com>  
**Sent:** Tuesday, May 24, 2016 9:14 AM  
**To:** CHAIRMAN Resource; CMRSVINICKI Resource; CMROSTENDORFF Resource; CMRBARAN Resource; Docket, Hearing; NRCExecSec Resource; mdoane@nrc.gov  
**Cc:** wglew@entergy.com; Richard Ayres; John Bernetich  
**Subject:** [External\_Sender] Indian Point-Emergency Petition  
**Attachments:** 16-05-24 Friends-Indian Point emergency petition to commission.pdf; ATT00001.htm

Dear Commissioners,

On behalf of Friends of the Earth, please find attached an emergency petition regarding Indian Point Nuclear Generating Station. We ask that you give it expedited consideration.

Sincerely,  
Jessica Olson  
Counsel for Friends of the Earth