



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 30, 2017

Mr. Paul Gunter, Director  
Reactor Oversight Project  
Beyond Nuclear  
6930 Carroll Avenue, #400  
Takoma Park, MD 20912

Dear Mr. Gunter:

I am responding to your petition dated January 24, 2017,<sup>1</sup> as supplemented by e-mails dated February 16,<sup>2</sup> March 6,<sup>3,4</sup> June 16,<sup>5</sup> June 22,<sup>6</sup> June 27,<sup>7</sup> June 30,<sup>8</sup> and July 5, 2017.<sup>9</sup> These supplements did not expand the scope of your petition, or request additional actions that should be considered as a new petition, and will be reviewed with the original petition. On behalf of Beyond Nuclear, and representing numerous public interest groups (collectively, Beyond Nuclear, et al., or Petitioners), you submitted a petition pursuant to Section 2.206 of Title 10 of the *Code of Federal Regulations* (10 CFR) 2.206, "Requests for action under this subpart," of the U.S. Nuclear Regulatory Commission's (NRC's) regulations. Your petition requested that the NRC take emergency enforcement action at U.S. nuclear power plants that currently rely on potentially defective safety-related components and potentially falsified quality assurance documentation supplied by AREVA-Le Creusot Forge and its subcontractor, Japan Casting and Forging Corporation. Your petition, addressed to the Executive Director for Operations, Mr. Victor McCree, was referred to the Office of Nuclear Reactor Regulation (NRR) for review.

Specifically, you requested that the NRC take the following enforcement actions:

1. Suspend power operations of U.S. nuclear power plants relying upon AREVA-Le Creusot Forge components and Le Creusot subcontractors pending both full inspection (including non-destructive examination by ultrasonic testing) and material testing. With the finding of carbon anomalies ("carbon segregation" or "carbon macrosegregation") in excess of the design basis specifications for at-risk component parts, require the licensee to
  - a. replace the degraded at-risk component(s) with quality certified components, or
  - b. for those at-risk degraded components that a licensee seeks to allow to remain in-service, make application through the license amendment request process to

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<sup>1</sup> Agencywide Documents Access and Management System (ADAMS) Accession No. ML17025A180.

<sup>2</sup> ADAMS Accession No. ML17052A032.

<sup>3</sup> ADAMS Accession No. ML17068A061.

<sup>4</sup> ADAMS Accession No. ML17067A562.

<sup>5</sup> ADAMS Accession No. ML17174A087.

<sup>6</sup> ADAMS Accession No. ML17174A788.

<sup>7</sup> ADAMS Accession No. ML17179A288.

<sup>8</sup> ADAMS Accession No. ML17184A058.

<sup>9</sup> ADAMS Accession No. ML17187A026.

demonstrate that a revised design-basis is achievable and will not render the in-service component unacceptably vulnerable to fast fracture failure at any time, and in any credible service condition, throughout the current license of the power reactor.

2. If the NRC declines the Petitioners' request for the immediate suspension of reactor operations pending inspections and material testing of at-risk components, the NRC should alternatively modify the operating licenses to require the affected operators to perform the requested emergency enforcement actions at the next scheduled outage.
3. Given that the agency is reliant upon its licensees to oversee their own quality control, the agency should "take other action as may be proper" by issuing a letter to all U.S. light water reactor operators pursuant to 10 CFR 50.54(f) requiring licensees to provide the NRC with information under oath and affirming specifically how U.S. operators are reliably monitoring contractors and subcontractors for the potential carbon segmentation anomaly in the supply chain and the reliability of the quality assurance certification of those components.

You requested that the industry's responses to the requested 10 CFR 50.54(f) letters be publicly released into the NRC's Agencywide Documents Access and Management System (ADAMS).

Your petition is publicly available on the NRC's Web site (<https://www.nrc.gov/>) and through ADAMS.<sup>10</sup> Management Directive 8.11, "Review Process for 10 CFR 2.206 Petitions," which is publicly available in ADAMS,<sup>11</sup> describes the NRC's review process for 10 CFR 2.206 petitions.

On February 2, 2017,<sup>12</sup> the NRR petition manager contacted you by e-mail to acknowledge receipt of your petition and to offer you an opportunity to address NRR's 2.206 Petition Review Board (PRB) to discuss your petition, which you accepted and which was then scheduled for March 8, 2017.

On February 8, 2017, the PRB met internally to discuss your request for immediate actions and informed you on February 13, 2017,<sup>13</sup> that none were warranted at that time because the NRC has reasonable assurance of public health and safety and protection of the environment. The basis for the PRB's determination included the following:

- **Extent of Condition.** Internationally, carbon macrosegregation has only been found in components produced by AREVA-Le Creusot Forge using a specific processing route. Based on the staff's knowledge in February 2017, only a subset of the plants identified in the petition for immediate action(s) contain components that may have used the processing route that resulted in the excess carbon macrosegregation found in international plants.
- **Degree of Condition.** If carbon macrosegregation is present in a component, it occurs in a localized region of the forged component. It is not a bulk material phenomenon, does not go through thickness, and is not expected to impact the

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<sup>10</sup> ADAMS Accession No. ML17025A180.

<sup>11</sup> ADAMS Accession No. ML041770328.

<sup>12</sup> ADAMS Accession No. ML17039A501.

<sup>13</sup> ADAMS Accession No. ML17052A033.

structural integrity of the components. Also, based on the staff's knowledge in February 2017, the highest levels of carbon macrosegregation observed internationally, if present in the postulated regions of U.S. components, are not expected to alter the mechanical properties of the material enough to impact the structural integrity of the components. Destructive examinations of components containing regions of carbon macrosegregation have been conducted internationally to determine the impact of carbon macrosegregation on mechanical properties.

- **Safety Significance.** The staff's preliminary safety assessment concluded that the safety significance of carbon macrosegregation to the U.S. fleet appears to be negligible. This assessment was based on knowledge of the material processing, qualitative analysis, compliance of U.S. components to the American Society of Mechanical Engineers Code, and the results of preliminary structural evaluations. The basis for this determination was subsequently presented at a Regulatory Information Conference session entitled "Carbon Macrosegregation in Large Nuclear Forgings" on March 15, 2017.<sup>14</sup>

On March 8, 2017, you addressed the PRB in a public meeting. The transcript of that meeting<sup>15</sup> is publicly available. As you requested in your supplement<sup>16</sup> a list of attendees was added.<sup>17</sup>

On April 11, 2017, the PRB met to discuss your petition with respect to the criteria for consideration under 10 CFR 2.206. Based upon that review, the PRB determined that the petition request meets the criteria for consideration under 10 CFR 2.206. On May 19, 2017, the petition manager informed you that the initial recommendation was to accept the requested actions in your petition for review but to refer a portion of the petition (i.e., your concern of potentially falsified quality assurance documentation) to another NRC process for appropriate action.<sup>18</sup> Because the allegation process provides an opportunity for the petitioner to address these concerns, the issue of potentially falsified quality assurance documentation will not be reviewed as part of this 2.206 petition. The NRR petition manager also offered you an opportunity to comment on the PRB's recommendations. On July 5, 2017, the petition manager clarified the initial recommendation and requested a response as to whether you wanted to address the PRB a second time to comment on its recommendations.<sup>19</sup> You did not request a second opportunity to address the PRB. Therefore, the PRB's initial recommendations to accept part of your petition for review under 10 CFR 2.206 and refer a part to another NRC process becomes final.

As provided by 10 CFR 2.206, we will take action on your request within a reasonable amount of time. I have assigned Ms. Merrilee Banic to be the petition manager for this petition. Ms. Banic can be reached by telephone at 301-415-2771 or by e-mail at [Merrilee.Banic@nrc.gov](mailto:Merrilee.Banic@nrc.gov). I also assigned Ms. Anne Boland as PRB chairperson, who can be reached by telephone at 301-415-1453 or by e-mail at [Anne.Boland@nrc.gov](mailto:Anne.Boland@nrc.gov).

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<sup>14</sup> ADAMS Accession No. ML17171A106.

<sup>15</sup> ADAMS Accession No. ML17081A418.

<sup>16</sup> ADAMS Accession No. ML17187A026.

<sup>17</sup> ADAMS Accession No. ML17187A415.

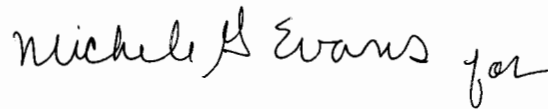
<sup>18</sup> ADAMS Accession No. ML17142A334.

<sup>19</sup> ADAMS Accession No. ML17188A152.

Enclosed for your information is a copy of the notice that the NRC will publish in the *Federal Register*. You can find NUREG/BR-0200, "Public Petition Process," publicly available in ADAMS.<sup>20</sup>

I would like to express my appreciation for your effort in bringing these matters to the attention of the NRC.

Sincerely,

Handwritten signature in cursive script that reads "Michelle Evans for".

Brian E. Holian, Acting Director  
Office of Nuclear Reactor Regulation

Docket Nos. 50-282, 50-306, 50-368,  
50-334, 50-338, 50-339, 50-280, 50-445,  
50-395, 50-348, 50-364, 50-498, 50-499,  
50-327, 50-390, 50-336, 50-335

Enclosure:  
*Federal Register* Notice

cc: Listserv

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<sup>20</sup> ADAMS Accession No. ML050900248.

**ENCLOSURE**

***FEDERAL REGISTER NOTICE***

**NUCLEAR REGULATORY COMMISSION**

[Docket Nos. 50-282, 50-306, 50-368, 50-334, 50-338, 50-339, 50-280, 50-445, 50-395, 50-348, 50-364, 50-498, 50-499, 50-327, 50-390, 50-336, 50-335; NRC-2017-XXXX]

**Northern States Power Company – Minnesota, Entergy Operations, Inc., FirstEnergy Nuclear Operating Company, Virginia Electric and Power Company, TEX Operations Company, LLC, South Carolina Electric & Gas Company, Inc., STP Nuclear Operating Company, Tennessee Valley Authority**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** 10 CFR 2.206 request; receipt.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is giving notice that by petition dated January 24, 2017, Mr. Gunter on behalf of Beyond Nuclear, and representing numerous public interest groups (collectively, Beyond Nuclear, et al., or petitioners), has requested that the NRC take action with regard to licensees of plants that currently rely on potentially defective safety-related components and potentially falsified quality assurance documentation supplied by AREVA-Le Creusot Forge and its subcontractor, Japan Casting and Forging Corporation. The petitioners' requests are included in the SUPPLEMENTARY INFORMATION section of this document.

**ADDRESSES:** Please refer to Docket ID <NRC-20YY-XXXX> when contacting the NRC about the availability of information regarding this document. You may obtain publicly-available information related to this document using any of the following methods:

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID <NRC-20YY-XXXX>. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov). For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public Documents](#)" and then select "[Begin Web-based ADAMS Search.](#)" For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in this document.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**FOR FURTHER INFORMATION CONTACT:** Merrilee Banic, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; telephone: 301-415-2771, e-mail: [Merrilee.Banic@nrc.gov](mailto:Merrilee.Banic@nrc.gov).

## **SUPPLEMENTARY INFORMATION:**

On January 24, 2017,<sup>1</sup> the petitioners requested that the NRC take action with regard to licensees of plants that currently rely on potentially defective safety-related components and potentially falsified quality assurance documentation supplied by AREVA-Le Creusot Forge and its subcontractor, Japan Casting and Forging Corporation.

As a basis for this request, the petitioners provided the expert review of John Large & Associates identifying significant “irregularities” and “anomalies” in both the manufacturing process and quality assurance documentation of large reactor components manufactured by the AREVA-Le Creusot Forge for French reactors and reactors in other countries.

The request is being treated pursuant to Section 2.206 of title 10 of the *Code of Federal Regulations* (10 CFR) of the Commission’s regulations. The request has been referred to the Director of the Office of Nuclear Reactor Regulation. The petitioners supplemented the petition on February 16,<sup>2</sup> March 6,<sup>3,4</sup> June 16,<sup>5</sup> June 22,<sup>6</sup> June 27,<sup>7</sup> June 30,<sup>8</sup> and July 5, 2017.<sup>9</sup> The supplements are being considered in evaluating the petitioners’ request for enforcement action.

The petitioners addressed the Petition Review Board in a public meeting on March 8, 2017; the transcript of that meeting<sup>10</sup> is an additional supplement to the petition. The results of that meeting were considered in the Board’s determination regarding the petitioners’ request for enforcement action. The Director determined that the petitioners’ request for enforcement action concerning potentially defective safety-related components met the criteria for review under the 10 CFR 2.206 process, but that the request about potentially falsified quality assurance documentation would be referred to another NRC process for appropriate

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<sup>1</sup> ADAMS Accession No. ML17025A180.

<sup>2</sup> ADAMS Accession No. ML17052A032.

<sup>3</sup> ADAMS Accession No. ML17068A061.

<sup>4</sup> ADAMS Accession No. ML17067A562.

<sup>5</sup> ADAMS Accession No. ML17174A087.

<sup>6</sup> ADAMS Accession No. ML17174A788.

<sup>7</sup> ADAMS Accession No. ML17179A288.

<sup>8</sup> ADAMS Accession No. ML17184A058.

<sup>9</sup> ADAMS Accession No. ML17187A026.

<sup>10</sup> ADAMS Accession No. ML17081A418.



action. Because the allegation process provides an opportunity for the petitioners to address these concerns, the issue of potentially falsified quality assurance documentation will not be reviewed as part of this 2.206 petition. The NRC will take appropriate action on this petition within a reasonable time.

Dated at Rockville, Maryland, this 30<sup>th</sup> day of August, 2017.

For the Nuclear Regulatory Commission.

A handwritten signature in black ink that reads "Michele G. Evans". The signature is written in a cursive style with a large initial "M".

Michele G. Evans, Deputy Director,  
Office of Nuclear Reactor Regulation.

SUBJECT: ACKNOWLEDGEMENT LETTER TO BEYOND NUCLEAR FOR 2.206  
 PETITION ON AREVA FORGINGS DATED AUGUST 30, 2017

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RidsNrrPMFarley Resource

RidsNrrPMMillstone Resource

RidsNrrPMNorthAnna Resource

RidsNrrPMPrairieland Resource

RidsNrrPMSequoyah Resource

RidsNrrPMSouthTexas Resource

RidsNrrPMStLucie Resource

RidsNrrPMSummer Resource

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RidsOcaMailCenter Resource

RidsOpaMail Resource

RidsRgn1MailCenter Resource

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**ADAMS Accession Nos.: PKG: ML17027A218; Incoming: ML17025A180;**

**LTR: ML17198A329; FRN: ML1700A065**

**\*concurred by email**

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DATE	07/21/17	08/25/17	08/23/17	08/30/17

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