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**NUCLEAR REGULATORY COMMISSION**

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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10 CFR 2.206 PETITION REVIEW BOARD (PRB)

CONFERENCE CALL RE: BEYOND NUCLEAR

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WEDNESDAY,

MARCH 8, 2017

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The conference call was held, Anne Boland, Chairperson of the Petition Review Board, presiding.

PETITIONERS: PAUL GUNTER, ERICA GRAY, ALAN MULLER,  
TIM JUDSON, NANCY BURTON, GEORGE CROCKER

PETITION REVIEW BOARD MEMBERS:

ANNE BOLAND, Director, Division of Operating  
Reactor Licensing, Chair

RICHARD ARRIGHI, Office of Enforcement

DOUGLAS BROADDUS, Division of Operating  
Reactor Licensing

ASHLEY FERGUSON, Office of New Reactors

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CHRISTOPHER HOVANEC, Office of Nuclear Reactor  
Regulation

SARA KIRKWOOD, Office of General Counsel

MARK KING, Office of Nuclear Reactor  
Regulation

PAUL KLEIN, Office of Nuclear Reactor  
Regulation

PAUL PRESCOTT, Office of New Reactors

MERRILEE BANIC, Office of Nuclear Reactor  
Regulation Petition Manager

ALSO PRESENT FOR THE NRC:

LUIS BETANCOURT, Co-facilitator, NRC

CRIS BROWN, Facilitator, NRC

DORI WILLIS, Office of Enforcement

SARA BERNAL-TAYLOR, Office of Enforcement

DAVID MCINTYRE, Office of Public Affairs

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[There were technical difficulties with the phone connection. Brackets indicate where gaps (and corrections) are filled in the transcript.

Meeting began with introductions and with the PRB clarifying to Petitioner Mr. Gunter that co-petitioners would have opportunities to speak.]

P-R-O-C-E-E-D-I-N-G-S

10:00 a.m.

MS. BROWN: All right. Good morning. I'd like to thank everybody for attending this meeting. My name is Cris Brown. I'm the facilitator for this meeting and Luis Betancourt is here as my co-facilitator. Our role is to help ensure today's meeting is informative and productive.

The purpose of this meeting is to allow

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the Petitioner Mr. Gunter of Beyond Nuclear to address the Petition Review Board for the petition on potentially defective safety-related components, and quality assurance documentation with anomalies supplied by Areva, the Creusot Forge and Japan Casting and Forging Company -- Corporation.

Our agenda for this meeting is as follows: Welcome and introductions followed by the PRB Chair introduction, the Petitioner's presentation followed by questions and closing remarks.

The meeting is scheduled from 10:00 a.m. to noon Eastern Time. It's being recorded by the NRC Operations Officer and will be transcribed by a court reporter. The transcript will become a supplement to the petition and a transcript will also be made publicly available. Prior to placing the transcript in ADAMS, the PRB will review it to ensure that it does not contain any allegations or sensitive information.

To get a good transcript and to minimize distraction we ask that you turn off or mute any device that rings, buzzes, beeps or alarms.

For those of you dialing into the

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meeting, please remember to mute your phones. If you don't have a mute button, this can be done by pressing star 6. And then to un-mute, if you wish to speak when we have that section of the meeting, just press the star six key again.

I'd like to emphasize that we need each individual to speak clearly and loudly to make sure that the court reporter accurately B-

[The insert below is from the prepared script]

- [transcribe this meeting. If you do have something that you would like to say, please first state your name for the record.
- We also ask you to minimize any side conversations during the meeting. We will try to have only one speaker at a time.
- Before we move on to introductions, I want to point out the exits and restrooms. For our guests here today, if you need to use the restroom please let an NRC staff member know so that we can escort you and if, in the unfortunate event, that we need to evacuate the building please be sure that you have one of us as an escort (5 guests per escort).
- Now I would like to have the NRC meeting participants introduce themselves. I ask that all of the participants clearly state, for the record, your name, your position, and your organization. For those here in the room, please speak up so that those on the phone can hear clearly and so that the court reporter can accurately record your name. I will start with myself and the other NRC participants here in the room. *[Luis Betancourt followed by Lee Banic starts the introductions]*.

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- We've completed introductions here in the room at NRC headquarters.
  - Are there any NRC participants from Headquarters on the phone?  
(Headquarters participants introduce themselves)
  - Are there any NRC participants from the Regional Office(s) on the phone? (Regional participants introduce themselves)
  - In view of the number of licensees on the phone, instead of each of you introducing yourselves now, I would like each of you to email your name, position, and organization. And likewise for the public. It is not required for members of the public to introduce themselves but if there are any on the phone or here in this room that wish to do so, please email your name, position, and organization to the petition manager at [Merrilee.Banic@nrc.gov](mailto:Merrilee.Banic@nrc.gov). If you wish to speak during that section of the meeting, please provide your name, position, and organization at that time.
  
- Mr. Gunter, would you please introduce yourself for the record followed by the petitioners who are participating in today's meeting?]

(Telephonic connection interrupted.)

MS. BROWN: Okay. So I'm going to let that [i.e., technical difficulties with bridge line] resolve itself. As you go through the petition I ask that the people who are going to speak B-

OPERATOR: You are no longer muted.

MS. BROWN: -- for them to introduce themselves so that the court reporter is able to capture their name at that time.

All right. So before we begin I'd like

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to share some general background information on our process.

Section 2.206, of Title 10 of the Code of Federal Regulations describes the petition process as the primary mechanism for the public to request enforcement action by the NRC in a public process. This process permits anyone to petition the NRC to take enforcement action related to NRC licensees or licensed activities. Depending on the results of this evaluation the NRC could modify, suspend or revoke an NRC-issued license, take any other -- or take any other appropriate enforcement action to resolve a problem.

The NRC's staff's guidance for the disposition of the 2.206 petition request is in Management Directive 8.11, which is publicly available.

The purpose of today's meeting is to give the Petitioner an opportunity to provide any additional explanation or support for the petition before the Petition Review Board's initial consideration and recommendation.

This meeting is not a hearing nor is it an opportunity for the Petitioner to question or

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examine the PRB on the merits or the issues presented in the petition request.

No decisions regarding the merits of this petition will be made at this meeting. Following this meeting the Petition Review Board will conduct its internal deliberations. The outcome of this internal meeting will be discussed with the Petitioner.

A Petition Review Board typically consists of a chairman, usually a manager at the senior executive service level at the NRC as the petition manager and a PRB coordinator. Other members of the Board are determined by the NRC staff based on the content of the information in the petition request. The members of the Board have already introduced themselves.

As described in our process the NRC staff may asking clarifying questions to better understand the Petitioners' presentation and to reach a reasoned decision whether to accept or reject the Petitioners' request for review under the 2.206 process. Also, as described in our process the licensees have been invited to participate in today's meeting to ensure that they understand the

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concerns about the facility or activities.

While the licensees may also questions to clarify the issues raised by the Petitioner, I want to stress that the licensees are not part of the PRB's decision making process. Licensees will have an opportunity to ask the Petitioner questions after his presentation.

I'd like to now turn the meeting over to Anne Boland, Chair of the Board, who will discuss the specific petition under consideration.

MS. BOLAND: Okay. Thank you, Cris.

And welcome. Thank you for exercising this part of our regulatory process.

I just I'd just like to summarize for you and those who may not be as familiar, on January 24th you and your Co-Petitioners requested that the NRC take enforcement action in accordance with 10 CFR 2.206 as U.S. reactors that are currently relying on potentially defective safety-related components and quality assurance documentation with anomalies supplied by Areva, Le Creusot Forge and its subcontractor Japan Casting and Forging Corporation.

You requested to suspend power

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operations of U.S. nuclear power plants relying on Le Creusot Forge components and Le Creusot subcontractors pending both full inspection and material testing. With the finding of carbon anomalies in excess of the design-basis specifications for at-risk component parts you the Petitioners requested further action.

On February the 2nd the petition manager, Ms. Banic, offered you an opportunity to address the PRB prior to its internal meeting to make an initial recommendation regarding whether to accept or reject the petition for review. On February 3rd you accepted that offer and therefore we're here today at today's meeting.

On February 8th the PRB met initially to consider your request for immediate enforcement action. The PRB's decision was not to take immediate action and we would seek to get additional information from you at this meeting. You were informed of that decision on February 13th by Ms. Banic.

On March the 6th you and your Co-Petitioner supplemented the petition by email and stated that you would refer to those supplements

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during this meeting. We do have that information available, so if there's specific things you want to cite, we'll be able to capture that.

Also as a reminder for the phone participants, please identify yourself as you make any remarks and Mr. Gunter will tee up those discussions as part of the Petitioners' presentation time.

And since this is a public meeting I would like to remind the PRB members, the licensees, the Petitioners and other meeting participants of the need to refrain from discussing NRC-sensitive or proprietary information during today's meeting.

So with that, unless Cris has anything to offer or Ms. Banic, I would turn it over to you for approximately one hour and fifteen minutes.

MR. GUNTER: Okay. Well, thank you.

I would like to first express my appreciation to the staff of the U.S. Nuclear Regulatory Commission for its December 30th, 2016 decision to deny Areva's December 15, 2016 request to withhold from public disclosure the U.S. reactors and their potentially at-risk safety-related components that make up the all-important pressure

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coolant boundary for these reactors during their operation.

Areva had sought to make the list of U.S. reactors a business secret and had requested nondisclosure, but again we appreciate that the NRC denied that given that putting the public at any unmeasured risk is unacceptable. And that's essentially what we're here today to seek to have this risk analyzed as is going on overseas. And as such, we are looking for the NRC to similarly exercise good regulatory practice in placing public health and safety first and as your mandate has dictated.

Those 17 units that are now publicly identified are Arkansas Nuclear Unit 1, Beaver Valley Unit 1 -- and again, Arkansas is in Arkansas; Beaver Valley is in Pennsylvania. Comanche Peak Unit 1 in Texas, Farley 1 and 2 in Alabama, Millstone Unit 2 in Connecticut, North Anna Units 1 and 2 in Virginia, Prairie Island 1 and 2 in Minnesota, Sequoyah Unit in Tennessee, South Texas 1 and 2 in Texas, Surry Unit 1 in Virginia, St. Lucie 1 in Florida, VC Summer in South Carolina, and Watts Bar Unit 1 in Tennessee.

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The Petitioners have filed an emergency enforcement petition under Chapter 10 of the Code of Federal Regulations, Part 2.206, and request that the U.S. Nuclear Safety Agency engage the same level of inspection and material testing of U.S. reactors with at-risk components with the same urgency as France and other European reactors are approaching this crisis of confidence in safety margins.

Until material testing is conducted here in the United States, the NRC, and more importantly the communities living near these impacted nuclear reactors will not know the risks these reactors pose.

The Petitioners have requested the meeting today with the Petition Review Board to supplement their petition for the requested emergency enforcement action.

The Petitioners largely rely on the expert opinion and documentation provided by John LeForge -- John Large, I'm sorry, with Large Associates in their report entitled, "Irregularities and Anomalies Relating to the Forge Components of Le Creusot Forge," dated September 26, 2016, as it was prepared for Greenpeace, France.

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In a brief recap, in 2014 the French Nuclear Design and Manufacturing Company Areva notified the French nuclear safety regulator, ASN, of results of material tests that had been carried out upon a component manufactured at Creusot Forge in France. These tests were undertaken by Areva as part of a qualification technique of components for the European pressurized reactor, EPR, under construction in Flamanville Unit 3 Nuclear Power Plant.

The Areva test results revealed that the material characteristics of Creusot Forge components for the reactor pressure vessel did not conform for the fracture toughness design-basis specifications as a result of anomalies developed during a manufacturing process.

The Large Associate report describes the forging process as it pertains to these anomalies. In brief, following the pouring of low-carbon ferritic steel, the ingot is allowed to slowly cool from the melting temperature at about 1,540 degrees centigrade, thereby undergoing solidification of the carbon alloy. During the solidification process the solute is partitioned between the solid and liquid

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molten phases to either deplete or enrich the dendritic or branching tree-like crystal structure regions. The process -- or the progress of the mushy/solid/liquid phase varies within the body of ingot, and particularly the localized rate of cooling leading to microsegregation <sup>i</sup> variations in the composition of the alloy.

Variations in the ingot cooling rate lead to diverse microsegregation regimes being generated in different parts of the body of the ingot. In a low-carbon steel alloy this microsegregation results in enhanced and depleted zones of carbon, the segregates, that is a loss of homogeneity. At the microscale inconsistencies in the chemical and physical makeup of the alloy all resulting in variation in the chemical and physical material properties of the final steel component.

Where the segregates are enhanced over the intended level; i.e., the carbon content is richer, the microsegregation is referred to as, quote, "positive." Almost all microsegregation is undesirable for the first stage ingot manufacturing in the overall forging route because unless the affected zones are cropped and discarded from the

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ingot prior to the final forging machining process, the variations remain in the body of the finished component.

These chemical inconsistencies introduced by microsegregation can deliver different microstructures and hence inconsistencies in the mechanical properties of the steel. The inclusion of segregates in finished forge components, even in minute quantities, may also lead to the formation of crack-type defects in conjunction with the application of weld deposited cladding.

The early stage of the forging process at Creusot, like all other forges, includes cropping them and discarding potential sections of the ingot to remove the top and bottom microsegregation zone. The opportunity to intervene in the forging process to stall and limit microsegregation is during the casting, cooling and separately the blooming and discarding stages. Once these process stages have passed any microsegregation zone remains captured and is progressively worked into the developing forged component shape.

Areva now admits that the Creusot manufacturing route was flawed. Subsequent cast

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findings showed an increased carbon content across a large zone area of the equivalent of each of the upper and lower head shells that were already incorporated into the Unit 3 reactor pressure vessel. The excessive carbon contamination was indicated as present throughout much of the thickness of the equivalent vessel head shell.

The particular carbon anomaly, or carbon macrosegregation is identified as an unacceptable weakness in the steel alloy potentially resulting in rapid tearing and potential catastrophic failure under operational and accidental conditions.

I'd like to quote John Large, who states, in the macrosegregation zones of excess carbon the toughness or resistance of the steel to tearing and cracking is lowered rendering forged components vulnerable to abrupt and catastrophic failure via rapid crack propagation and fast fracture. The fracture toughness is particularly an important characteristic of the through-life components of the nuclear primary pressure circuit for which, quote, 'break preclusion; i.e., no opportunity for catastrophic failure, is an absolute prerequisite of the design-basis and nuclear safety

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case.'"

The sourcing of these suspect at-risk components goes beyond Creusot Forge to include steam generator components manufactured at Japan Casting and Forging Company and possibly Japan Steelworks, which widens the international dimension and crises of confidence in safety margins for these nuclear power stations.

Large Associates reports that following a number of in situ inspections of the JCFC-sourced steam generator manifolds, bottomheads, ASN announced that, quote, "JCFC channel heads first measured tend to show higher carbon percentage than 0.30 percent, thereby raising doubts about the toughness characteristic of JCFC-sourced components in particular. The higher the concentration of carbon impurity in steel, the weaker the component.

France's single nuclear power plant operator, Electricite de France S.A., or EDF, was required to evaluate the nuclear safety of its operational reactors on a case-by-case basis.

It was further revealed that the quality assurance and component conformity was unsatisfactory not only for the manufacturing route

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for these components that had never been subjected to the quality techniques, and thus had not obtained a certificate of conformity, but also that these uncertainties included components that had been manufactured as far back as 1965.

ASN has generally coined these uncertainties as irregularities and ASN defines such irregularities as compromised inconsistencies, modifications or omissions in the production files concerning manufacturing parameters and test results.

The Petitioners remained concerned that if U.S. nuclear power stations continue to operate without thorough inspections and material testing of these at-risk components, then the public is being exposed to an unidentified measure of increased and undue risk from a potential accident arising from the failure of installed suspect and at-risk components.

The Petitioners have requested that the NRC responsibly address this undue risk through the requested enhanced inspections and material testing of at-risk components at U.S. reactors. Specifically to the U.S. situation, in response to

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the growing Areva Creusot controversy overseas, David McIntyre with the NRC Office of Public Affairs has stated, quote, "A primary review by NRC inspectors indicated that Areva had made a responsible assessment supporting no nuclear safety concerns," unquote.

Mr. McIntyre in press accounts that followed further stated that NRC confidence is based on the U.S. material qualification process, the preliminary structural evaluations of reactor components under scrutiny in France, and U.S. material aging management programs or participation in a multinational inspection of Creusot Forge and information supplied by Areva about the documentation anomalies.

However, it is the Petitioners' understanding, again according to Large Associates' expert evaluation and investigation into the Creusot Forge technical issues in France, the United Kingdom and other European countries that, and I quote, "The presence and extent of a microsegregation zone can only be fully detected, mapped and examined by destructive means."

So any potential defects have to be

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deduced via inference testing of: (1) a test ring taken from the surplus edges of the component and/or by destructively examining: (2) a supernumerary or equivalent replica forging that has followed through the same manufacturing route as the Flamanville 3 component.

The Petitioners assert that just as the European Nuclear Safety Agencies have required inspections and testing on a case-by-case basis. The NRC should similarly undertake an urgent examination and material testing of U.S. units with affected components, if not now, as the Board has decided to deny, we're requesting at the next scheduled reactor outage, which is part of our petition.

Beyond Nuclear and the Co-Petitioners further supplement their emergency enforcement petition by identifying an apparent irregularity in Areva communications to the NRC specific to its record keeping of U.S. reactors affected by at-risk Creusot Forge components. Again, ASN has defined such irregularities to, quote, "compromise inconsistencies, modifications or omissions in the production files concerning manufacturing parameters

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and test results."

The broad range of definitions covers the Areva Creusot manufacturing route, material defects, dubious record keeping and mismanagement.

The U.S. NRC sent a November 30th, 2016 email to Areva entitled, "NRC Request for Documentation Associated with U.S. Components Manufactured at Creusot Forge." Areva initially responded dated December 15, 2016 in Areva's Attachment A entitled, "Creusot Forge Forgings in U.S. Components Identified the Aforementioned 17 Reactor Units in the United States Including Units with Their Components Awaiting Installation."

Areva identified in its December 15 response that these units have a total of 127 at-risk forges comprising reactor pressure vessels, replacement vessel heads, steam generator components and pressurizer components as a result of Creusot Forge's manufacturing chain for its U.S. customers. Areva then provided a second response to the list of at-risk components which was substantially revised upward in a February 3, 2017 attachment that enumerated 164 components for the 17 units.

The Petitioners note that Areva's

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February 3rd, 2017 response to the NRC request for documentation states, and I quote, "In reference 1 Areva provided an Attachment A which listed U.S. nuclear power plants that ordered components fabricated with forges from Creusot Forge, CF. In reference 2 Areva noted that the Attachment A list outlined components that were ordered by the actual number of forgings used may need to be updated by the prime contractor. Areva has recently received information, Attachment B, from the prime contractor and has incorporated it in Revision 1, Attachment A in this letter, February 3rd, 2017. No other revisions to Attachment A are anticipated in the future."

Subsequent to Areva's February 2017 revised response to the NRC the Petitioners read a news account published by the *Times* online in Pennsylvania dated February 15, 2017 headlined, "Groups Calling for Shutdown of Beaver Valley Nuclear Plant." Petitioners have provided a copy of that news article to the Board as a supplement to the petition.

As you'll read, the news story states, quote, "First Energy spokeswoman Jennifer Young

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confirmed Wednesday that Beaver Valley Unit 1 does have parts that were manufactured at the Areva facility in France. Those parts are located in the replacement reactor head and steam generators at Beaver Valley. In addition, Nuclear Regulatory Commission spokesman Neil Sheehan confirmed that Unit 2 at Beaver Valley has components made at the forge, but First Energy has decided to delay their installation for at least a few years."

So contrary to Areva's assertion in its February 3rd, 2017 response to the NRC request for information, Beaver Valley Unit 2 is revealed to have Creusot Forge replacement components for the reactor pressure vessel head and steam generators as confirmed by NRC Region I Office of Public Affairs. However, Beaver Valley Unit 2 and those components are not listed in either of Areva's responses to the NRC request for information.

Inclusion of Beaver Valley Unit 2 brings the total of impacted U.S. reactors to 18 units, not 17. The Petitioners contend that Areva's apparent failure to accurately capture the factual record of Creusot Forge replacement pressure vessel and steam generator components to First Energy's Beaver Valley

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Unit 2 constitutes an egregious irregularity. If this is correct, it is unacceptable in terms of nuclear safety and public confidence in the safety margins relating to these anomalies.

But again, I just go back to the fact that the responses had identified that these were orders and not necessarily just those units that were -- that had installed, so we submit that these are significant irregularities where again Areva apparently has lost track and account of the number of forged components from Creusot as supplied to U.S. reactors and also failed to provide an accurate record to the Nuclear Regulatory Commission on request.

The Petitioners additionally supplement the emergency enforcement action request by a copy of the February 21st, 2017 email from Paul Gunter with Beyond Nuclear to Neil Sheehan, NRC Region I Office of Public Affairs on how the NRC will deposition Areva's incomplete record keeping for Creusot Forge components at U.S. nuclear power stations.

Mr. Sheehan provided in the email thread, which you have a copy of, to read, "I will

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confer with staff on these questions and get back to you," unquote. The Petitioners are still waiting for the Region I response to that email.

I think though given the -- an apparent irregularity by Areva's omission in two responses to the NRC request for information on Creusot Forge components in U.S. nuclear reactors the Petitioners assert that their action request for the issuance of confirmatory licensee responses under 10 CFR 50.54(f) is justified all the more to rule out the discovery of any additional irregularities of reporting of Creusot Forge or Japan Casting and Forging Corporation at-risk components.

In closing, the Petitioners wish to point out that we have Freedom of Information Act, FOIA/PA 2017-00208 on request. We've provided you with a supplement with the acknowledgement letter from the NRC FOIA Division in request of all relevant NRC communications and documentation that regards the tracking of Areva Creusot Forge components in U.S. reactors.

The Petitioners hereby request that the Petition Review Board delay its draft decision until after the agency completes release of those

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documents requested by Beyond Nuclear and allow the Petitioners some reasonable time to review the documents provided released under the FOIA.

The Petitioners take this opportunity to request that the Petition Review Board provide them with an additional public meeting under Management Directive 8.11, Review Process for 10 CFR 2.206 Petitions, so that we may incorporate any additional findings provided by the FOIA and any further developments and judgments from ongoing investigations from overseas that potentially impact U.S. reactor B-  
[inaudible word]

One last request is that the Petitioners request that the Petition Review Board meeting be afforded an opportunity for further transparency through livestream and archived web casts as has been the custom of the agency in previous public meetings under 10 CFR 2.206, which we participated. And these are clearly available on the NRC web archive. The Petitioners assert that this particular practice would be appropriate for reactor safety issues of an international scope.

So I'll take this opportunity to thank

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you again for this opportunity to address the Petition Review Board and your help in building a public record on this matter of public health and safety.

MS. BROWN: So is there anybody else from your organization or as part of the petition that wants to speak now?

MR. GUNTER: I believe that Erica Gray from Virginia would like to offer some remarks.

MS. BROWN: Okay. Erica?

MS. GRAY: Yes, hi. Can you hear me?

MS. BROWN: Yes.

MS. GRAY: Yes, hi. My name is Erica Gray. I'm a volunteer with the Sierra Club, the Richmond, Virginia chapter and I follow the issues relating to North Anna and Surry plants, and I am one of the -- also one of the Petitioners.

As we go to the background, it sounds like Paul Gunter has covered some of the issues concerning what's happened in the background of the French nuclear safety regulator that basically asks the court to step in to investigate after Areva sounded the alarm over document irregularities, but it involved 6,000 nuclear component manufacturing

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files.

And in the NRC update on quality assurance issues in France just the first of this year the NRC informed the public that Areva had released documentation on December 15th about the 17 reactors. Of course now it's really 18. And then of course on December the 30th the NRC informed Areva that they would make it public.

But I also wanted to state that this investigation is ongoing. Areva expects to complete its records review by June. And for the NRC to state that they will independently examine the information in determining what document anomalies exist as well as any anomalies as significant is not sufficient. This is an ongoing probe not only that includes potentially defective parts, but also the falsifying of quality assurance documents possibly for decades.

Reviewing documents that might be falsified does not protect public health and safety. That is why we the Petitioners are asking for a shutdown to do actual testing.

In previous NRC meetings regarding subsequent license renewal an NRC staff member noted

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that how will all the amendments and exemptions etcetera that -- from the original plant criteria be accounted for? It's a daunting task. I mention this because what's also needed now is a complete detailing of the inspections done at all of these at-risk plants on these in-question components be done and made publicly available.

In 2002 the NRC recognized issues regarding primary water stress corrosion cracking which led Dominion to fast track replacement of all four reactor pressure vessel heads because extensive cracking was found, but trying to locate important documents on the NRC web site is no easy task.

In 2002 Dominion recognized the potential safety significance for pressure water stress corrosion cracking in reactor vessel head penetrations and the ensuing potential for corrosion of the head. And the NRC stated they believe 100 percent of bare metal visual inspections of reactor pressure heads every refueling outage provided an adequate early indication of the onset of early PWSCC-initiated leakage.

But by 2017 these guidances have changed. A hundred percent is not required. An

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examination of RPV head penetration once every 10 effective power -- full power years is not sufficient, nor wise.

The Fukushima nuclear disaster could have been prevented. Critical backup generators were built in low-lying areas at risk for tsunami despite warnings from scientists. This disaster has been described as a cascade of industrial, regulatory and engineering failures.

This Saturday March the 11th, 2017 marks six years of the Fukushima disaster. In a recent statement from Naohiro Masuda, the chief decommissioning officer there in Japan, said on Wednesday that the operator has yet to locate the melted fuel and where it has gone.

The NRC must do its job and do real testing, preferably sooner than later. It's simply not worth the risk. Thank you.

MR. GUNTER: May I ask right now if any of the other Co-petitioners would like to offer comments?

MS. BROWN: Yes.

MR. GUNTER: Thank you.

MR. MULLER: This is Alan Muller. Am I

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being heard?

MS. BROWN: Yes, you are.

MR. MULLER: Thank you. Again, my name is Alan Muller. I'm the executive director of Green Delaware and I am primarily concerned with the Salem 1 and 2 reactors in New Jersey and the Prairie Island 1 and 2 reactors in Minnesota.

And we had received some conflicting information about whether Salem 1 and 2 may contain questionable Areva components. And in view of the increase in the list of recognized reactors with Beaver Valley No. 2, I feel even more motivated to seek some clarification of that.

Is the NRC in possession of what it regards as adequate information regarding the status of the two Salem reactors and Areva components? That's a question.

MR. GUNTER: Alan, I just want to step in because the Petition Review Board has outlined at the beginning wasn't going to be answering any questions here, but I can say that we would expect that such questions would be addressed in the director's decision to follow.

MS. BROWN: Thank you. Yes.

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MR. MULLER: Okay. Well, if the question is not admissible at this time, let me just make --

(Simultaneous speaking.)

MR. GUNTER: No, I think again just for clarification, the question is admissible, but it's just not going to get answered until they submit a draft director's decision. So it'll come in writing is what we anticipate.

MR. MULLER: Well, it appears that the owners and operators of the Salem reactors, PSEG, have employed Areva for outage services and that in general Areva has a substantial involvement in the operation of those reactors, which to me makes it important to have reliable information on this point, particularly given the rather troubled history on Salem I and Salem 2.

MR. GUNTER: So if I could just intercede, I think that Alan's -- he underscores our joint concern as has been submitted in the petition for the NRC to take action under 10 CFR 50.54(f). And I think that is precisely why we're seeking this as part an emergency enforcement action so that we can all have some confidence that these anomalies

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are being captured under oath and affirmation.

MS. BROWN: Thank you. Is there anyone else?

MR. GUNTER: Yes. And so now would be the opportunity for any of the other Co-petitioners to identify yourself to speak.

MR. JUDSON: Hi, this is Tim Judson, the Executive Director at the Nuclear Information and Resource Service for one of the Co-petitioners, and I'll be brief.

There are a few moments in which there's really a test upon NRC of its credibility as a nuclear safety regulator, and we filed one of those most recently or most directly with the NRC's response to the Fukushima nuclear disaster. And we're now approaching six years after that fateful event and still almost no meaningful regulatory improvements have been instituted throughout the industry as lessons learned from the Fukushima accident. And some of the initial recommendations were of course quickly watered down or exempted or overruled by the Commission.

Here we have a case in which we know that potentially dozens of reactors across the

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country, all of which are aging, may have had for much of their lives and may continue to have now defective components that wouldn't have met the quality assurance criteria under which they're licensed and regulated. And I think we see across the pond over in France where this -- where these parts were manufactured and were installed in reactors there that French regulators; whatever you can say about the French regulatory system, have actually taken steps to shut down reactors and do inspections and provide some assurance to the public that the safety standards are being looked after and maintained.

In the U.S. we've -- what we seem to be getting from the NRC consistently on these issues is a refusal to even provide the basic information about which reactors are affected and which components are at issue. And that really, I mean, obviously undermines public confidence in the NRC's protection of public health and safety.

But we have a really sort of concrete issue with the fact that these reactors are aging reactors, and most of the ones at issue are reactors that were relicensed by the NRC within the last 10

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to 20 years to operate for an extra 20 years beyond their original design life on the premise that the operators have aging management programs that are able to detect safety problems with aging components.

And if in fact these reactors are riddled with components that were manufactured defectively and with materials that are apt -- that were apt to be prone to failure in their original condition, never mind an aged and embrittled condition, we need to have greater assurances that in fact the NRC is going to ascertain the material condition of these plants that were relicensed under these conditions.

And so we would really urge the NRC in particular in this case to take the extra step and to do what regulators in France have done and to make sure that we don't have ticking time bombs operating across the country. Thanks very much.

MS. BROWN: Are there any other Petitioners on the call that wish to speak?

MR. MULLER: Yes, this is Alan Muller again. I appreciate the comments made by the person who just spoke and would like to echo them.

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If one compares the response of the French regulatory apparatus with the response of the NRC, on the face of things it appears that these concerns are being taken less seriously in the United States than they are in France. And it appears to me that the position that's essentially being taken by the NRC is that the existing procedures for quality assurance and quality control in nuclear components will have or would have captured the sort of metallurgical defects that we're talking about here. And I lack confidence in that, and I think our members lack confidence in that.

We have a concern, and this is said with all due respect to the NRC staff who -- I recognize that you're all doing what you've been told to do, but it appears that there is a mechanism of regulatory capture happening here, or at least the appearance of regulatory capture. And I think that there's an urgent need for the NRC to take the concerns reflected in the petition more seriously and to act on them in an affirmative way and not -- I hope you can do that. Thank you.

MS. BROWN: Are there any other

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Petitioners that wish to speak?

MS. BURTON: Yes. Can you hear me?

MS. BROWN: Yes.

MS. BURTON: Hi, I'm Nancy Burton. I'm Director of the Connecticut Coalition Against Millstone. Thank you very much for this opportunity. I will be very brief and adopt the comments of those who have preceded me with this addition: With regard to Millstone Unit 2, I believe it's heading into its rescheduled refueling outage next month as it is entering its 42nd year of operation and I believe record setting operation in terms of unplanned scrams, unplanned outages, which as you know subject a reactor to extraordinary changes in temperature and pressure.

And so speaking for the coalition, and I know speaking for many people here in Connecticut and the region, we would look forward to a very, very transparent process during this upcoming outage in terms of an actual destructive-as-it-needs-to-be examination of the pressurizer that Areva identified as having been manufactured at the forge in France so that -- that is it say as transparent as possible so that we can have confidence that the inspection

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that needs to be carried out is at least as comprehensive as has been done elsewhere over these issues. Thank you very much.

MS. BROWN: Are there any other Petitioners that wish to speak?

MR. CROCKER: My name is George Crocker. I'm the Executive Director of the North American Water Office in Minnesota. We are in full support of the comments of our previous Petitioners and we'd just like to add that it would be truly remarkable if we find ourselves in the situation once again where society is forced to react to no current because of the dereliction of duty by those who are sworn to protect public safety at the Nuclear Regulatory Commission.

So I would urge you, NRC, to follow the direction of the Petitioners and let's not end up reacting to another occurrence.

MS. BROWN: Are there any other Petitioners that wish to speak?

MS. GRAY: Yes, this is Erica Gray again in Richmond, Virginia. Can you hear me?

MS. BROWN: Yes.

MS. GRAY: Yes, I just also wanted to

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add that Dominion is leading the pack, so to speak, in wanting to relicense, extend the license to 80 years. And it's very hard to have confidence that that's going to even be possible if the NRC does not demand real testing, because there's not going to be any real assurance that we can do that in a safe way.

So I really appreciate the NRC to go forward and do the testing that is necessary to be able to give the assurance that there's any way possible that we should even extend the license or that they should even be running right now being that Dominion has just entered into their first license extension of the 20 years as they're looking to extend it again to 80 years. So, please, NRC, do what's needed. Thank you.

MS. BROWN: Are there any other Petitioners that wish to speak?

(No audible response.)

MS. Boland: Okay.

Hearing none, I think at this point what I'd like to do is look to the PRB members to see if they have any clarifying questions or anything that they would like to ask of the Petitioners. So with

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that, I'd open it up.

MR. HOVANEK: When you gave your background discussion you gave a lot of information on microsegregation verse macrosegregation. Could you please just give some clarification on --

(Simultaneous speaking.)

MR. GUNTER: Yes, if I said microsegregation, that was a misstatement.

MR. HOVANEK: Okay.

MR. GUNTER: It should be all macrosegregation.

MR. HOVANEK: Okay. Thank you.

MR. GUNTER: Thank you for alerting me to that.

MR. HOVANEK: An additional question is in the petition it references a few times the macrosegregation going through thickness in components. I didn't see any references for that. Do you have any additional information?

MR. GUNTER: That is in the Large Associates document that we've referenced. I can provide you with the page numbers for that. And that was for the Flamanville Unit 3 analysis, as I understand it.

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MR. HOVANEK: Oh, so you're referring to the analysis, not the actual physical component itself?

MR. GUNTER: The analysis.

MR. HOVANEK: Okay. Thank you.

COURT REPORTER: Hi, this is the court reporter. I'm sorry, could I just get the name of the person who's asking the questions?

MR. HOVANEK: Chris Hovanec.

COURT REPORTER: Okay. Thank you.

MR. HOVANEK: Thank you. That's all I have.

MR. GUNTER: Sure.

MS. Boland: Okay. Anybody -- any other NRC people here in the room have a question they'd like to ask?

(No audible response.)

MS. Boland: How about PRB members on the telephone?

(No audible response.)

MS. Boland: Okay. Hearing --

(Simultaneous speaking.)

MR. GUNTER: -- make one quick comment for the record?

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MS. Boland: Yes.

MR. GUNTER: Again drawing upon the PRB's alerting to this, I just want to make a correction into the record that any reference to macrosegregation should be termed -- no, microsegregation should be re-termed macrosegregation.

MS. Boland: And I just want to clarify based on what I think we've heard as you went through your presentation, understanding that there were some questions posed by some of the Petitioners on the phone -- but relative to the presentation you provided you did not provide anything in your statement today that is information that's not already included in the original petition or the supplement, correct?

MR. GUNTER: Yes, and the supplement contains the Large Associates reference as well.

MS. Boland: Yes, okay. Good. I just wanted to clarify that.

MS. KIRKWOOD: Can I ask one question?

MS. Boland: Absolutely. Can you state your name?

MS. KIRKWOOD: Sara Kirkwood, OGC. I

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heard both you and several of your Co-Petitioners reference that you wanted the NRC to order the -- either order or to do the appropriate testing. Could you identify what that was or just what we need it to be?

MR. GUNTER: It's our understanding that testing in Europe that's underway in -- I think it's certainly France, but Finland as well and one or two other countries -- has to do with ultrasonic testing of the affected components in terms of an inspection. And then taking of boat samples or ring samples from surplus material on affected components for material analysis of the actual carbon content and to pair the content as -- in situ with the reference content under the -- that qualifies the component within safety margins.

MS. BOLAND: Excellent. Before we turn it over back over to Cris, I would turn to Lee.

Is this an appropriate time to address the two questions that Mr. Gunter raised at the end of his statement at this point in the agenda? I think he raised two questions regarding the request to delay the draft decision until after receipt of the response from the FOIA, a request for a public

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meeting after that.

MR. GUNTER: A second meeting.

MS. BOLAND: A second meeting?

MR. GUNTER: That's provided under 811.

MS. Banic: And then -- well, certainly that's your opportunity to address it again. And FOIA is not part of the petition, the review process that we have accommodated Petitioners that have asked for FOIAs, and we've held petitions in abeyance until they have read the FOIA results and decided whether to present at the PRB again.

MS. BOLAND: I mean, it is the interest of the NRC to -

MS. BANIC: this is Lee Banic, Petition Manager. MS. BOLAND: It is our interest to address the concerns that you and your Co-Petitioners have raised in a timely manner. And we'll certainly leave this meeting with continuing evaluation, but I think without committing to -- if it gets into a protracted period of time, we can certainly entertain and would be inclined to delay the final director's decision until such time as you have the information that you requested on the FOIA. So I think the answer to that question is yes, as well as

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the public meeting aspect of that opportunity. Part of our process.

The last question regarding web streaming and so forth, I know you had requested that for this meeting as well. It is the agency's view that if you want to come forward with such a request, we will evaluate it on a case-by-case basis. We actually have web casted and archived those web casts on occasion as part of the 2.206 process, so we have done it for things that have very broad interests. We'll certainly take your request into consideration.

I don't -- at this point we wouldn't want to commit because often those resources are difficult to coordinate and then further lengthen the process. And we believe that we can achieve transparency through just what we did today. And certainly you're welcome as you were originally planning to do to web stream yourself. So we have provisions for that as well. So I would leave that open for the time being and we'll address it as the time nears.

MR. GUNTER: Can I briefly respond? I think that the significance particularly here that

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we would wish you to take special consideration of is that of the international scope to this particular issue and that web streaming provides a broader scope of participation and transparency that could more broadly include our international concerns.

MS. BOLAND: Okay. Thank you. Appreciate that. And again, I would just say I would acknowledge and --

(Off microphone conversation.)

MS. BOLAND: Are any licensees on the phone who would like to ask a question of the Petitioners?

PARTICIPANT: I have one question.

MS. BOLAND: Yes?

PARTICIPANT: You might have answered it earlier.

MS. BOLAND: Yes.

PARTICIPANT: I'm not clear about the status of the petition. Have you actually accepted it for issuance or a recommended decision or are you still considering whether --

(Simultaneous speaking.)

MS. BOLAND: We have not made a decision

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on whether to accept or reject the petition. The only thing we have met is was there an immediate action? [PRB transcript review added the following note - as stated earlier on page 9 of the transcript ... MS. BOLAND: ``The PRB's decision was not to take immediate action...'']

PARTICIPANT: Okay. Thank you.

MS. BANIC: Before we meet to accept the petition, the Petitioner has an opportunity to address the PRB in addition to this meeting today. That's Lee Banic, Petitioner Manager.

MS. BOLAND: Any other questions by licensees?

(No audible response.)

MS. BOLAND: Any other NRC staff on the line with questions?

(No audible response.)

MS. BOLAND: Okay. Hearing none, I'm going to turn the meeting back over to Cris, but I'd just like to say I appreciate the perspective and the safety focus of the Petitioners and the interests that you're trying to serve. NRC as well is dedicated to our health and safety mission. We have been actively engaged with the international

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community in evaluating data and information as it's come forward, and as you acknowledged, ensured that information that we have has gotten into the hands of our licensees and who's seeing the information related to where those components are in the United States. So we continue to be actively engaged.

And I'm sure some of the Petitioners really wanted their questions answered today, but as you very rightly stated, this is an information gathering process at this point and we will disposition those questions as we go through in the formal written decision.

With that, I'll hand it over to you.

MS. BROWN: Thank you, Anne. Before we conclude, members of the public may provide comments regarding the petition and ask questions about the 2.206 petition process, however, as I stated earlier the purpose of the meeting is not to provide an opportunity for the Petitioner or the public to question or examine the PRB regarding the merits of B- [the petition request.]

So at this time are there any members of the public that have any questions about the 2.206 petition process?

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MR. RICHARDS: This is Mark Richards, Nuclear Energy Institute. I do have one question not related to process, but referring to the Large Associates report that I believe Mr. Gunter referred to. Is that publicly available?

MR. GUNTER: Yes, it is publicly available and it is linked with -- on -- through the petition itself. The January 24, 2017 petition has a footnote with the hyperlink.

MR. RICHARDS: Okay. Thank you.

MS. Brown: Any other members of the public that wish to speak on the phone, or in the room? Okay. So hearing none, Mr. Gunter, I want to thank you for taking the time to provide the NRC staff with this clarifying information on the petition that you submitted. As we've discussed, the PRB will meet internally within a couple weeks to discuss the information and then get back to you on their initial recommendation.

So before we close does the court reporter need any additional information for the meeting transcript?

COURT REPORTER: Hi, this is the court reporter. I just wanted to mention that in the

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beginning about a minute in I did lose -- I dropped out of the call somehow, so there were a few minutes that I did not get. So I think you all said that you're recording this.

MS. Brown: Yes.

COURT REPORTER: Okay. So if I could somehow have access to that -- I don't know if this is the right time to mention it, but --

MS. BROWN: Absolutely. Merrilee will make sure that you get a copy of that.

COURT REPORTER: Oh, okay. Thank you. Other than that I don't need anything else. Thank you.

MS. Brown: All right. Thank you.

So with that, I want to thank everyone for their attention and their participation today, and the meeting is now concluded. Thank you again.

(Whereupon, the above-entitled matter went off the record at 11:13 p.m.)

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<sup>i</sup> Mr. Gunter used the term microsegregation throughout his presentation when he meant to use the term macrosegregation. He corrected this later in the meeting.

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