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General Electric Mark I and II [Boiling Water Reactors] BWRs

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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[GARDING]

GENERAL ELECTRIC (GE) MARK I AND II BOILING WATER REACTORS (BWRs)

+ + + + +

MONDAY

SEPTEMBER 30, 2013

+ + + + +

The conference call was held, Jack Davis, Chairperson of the Petition Review Board, presiding.

PETITIONER[S]: BEYOND NUCLEAR, et. al. [Paul Gunter – Beyond Nuclear (in person)

Tim Judson – CAN and NIRS (in person)

Jessica Azulay – AGREE (on phone)

Wally Taylor – Sierra Club Iowa (on phone)

Lewis Culbert – ACE (on phone)

Chuck Johnson – WA/OR PSR (on phone)

Gretel Johnston – BEST (on phone)

David Kraft – NEIS (on phone)

Mary Lampert – Pilgrim Watch (on phone)

Leslie Sullivan Sachs – SAGE (on phone)

Jeff Brown - GRAMMES (on phone)]

PETITION REVIEW BOARD MEMBERS

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LEE BANIC, [NRC] Petition Manager for 2.206 petition

ROBERT DENNIG, Branch Chief, Nuclear Reactor Regulation[, NRC]

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DAVE HELKER, Exelon

STEVEN HAMRICK, Florida Power and Light

TIM DEVIK, PSEG]

T-A-B-L-E O-F C-O-N-T-E-N-T-S

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

12:59 p.m.

MEMBER LAMB: Good afternoon. My name is John Lamb and I an [am] the NRC Beaver Valley, Seabrook and Oyster Creek senior project manager. We are here today to allow the Petitioners represented by Mr. Paul Gunter of Beyond Nuclear to address the Petition Review Board, or PRB, regarding the 2.206 Petition dated March 21st, 2013. The ADAMS accession number is ML13085A218. The PRB Chairman is Jack Davis. As part of the PRB's review of this petition Mr. Paul Gunter has requested this second opportunity to address the PRB.

This meeting is scheduled from 1:00 p.m. to 3:00 p.m. Eastern Time. The meeting is being recorded by the NRC Operations Center and will be transcribed by a court reporter. The transcript will become a supplement to the petition. The transcript will also be made available to the public.

I would like to open this meeting with introductions. As we go around the table, please be sure to clearly state your name, your position and t he [the] office you work for within the NRC for the record.

CHAIRMAN DAVIS: I'm Jack Davis, Director of Mitigating Strategies Directorate in NRR.

MEMBER MICHEL: Eric Michel from the Office of General Counsel.

MEMBER GORDON: Matthew Gordon, EDO's Office.

MR. SMITH: Again, George Smith. I'll be facilitating the meeting.

MR. GUNTER: Paul Gunter, Beyond Nuclear.

MR. JUDSON: Tim Judson, and I actually have a change in affiliation to put on the record. I'm on the petition. I was a representative of Citizens' Awareness Network and Alliance for a Green Economy. Still actually affiliated with those organizations, but recently was appointed the associate director for the Nuclear Information and Resource Service.

MEMBER RECKLEY: My name is Bill Reckley in the Office of Nuclear Reactor Regulation [NRR], Japan Lessons Learned Directorate.

MEMBER BANIC: Lee Banic, coordinator, NRR.

MEMBER DENNIG: Bob Dennig, branch chief in the Office of Nuclear Reactor Regulation.

MR. LAMB: Okay. We have completed introduction at the NRC Headquarters at this time. Are there any NRC participants from headquarters on the phone?

MR. SCHMIDT: John, this is Wayne Schmidt from NRC Region I.

MR. LAMB: Okay. Thank you, Wayne. Are there any NRC participants from the region? Wayne is from the region. Anyone else?

(No audible response.)

MR. LAMB: Okay. Thank you. Due to the large number of people for any of the licensees or members of the public that are on the phone, I would appreciate if you could send an email to john.lamb@nrc.gov as confirmation of your participation by phone. My email address is also located on the public meeting notice under "Meeting Contact."

I would like to emphasize that we each need to speak clearly and loudly to make sure that the court reporter can accurately transcribe this meeting. If you do have something that you would like to say, please state your name for the record.

At this time[,] I will turn it over to the PRB chairman, Jack Davis.

CHAIRMAN DAVIS: Good afternoon. As John said, the purpose of today's meeting is the second opportunity for you all to tell us if you have any additional information, explanation from what we talked about the last time. So it's part of the process.

As you already know, I have to go through this anyway, the PRB is made up typically of a chair, which is at the [NRC] SES [Senior Executive Service] level, the PRB project manager for it, and then a coordinator. And then[,] we have technical experts around the room that are associated with this project that can help us with the technical issues.

A couple of things.[,] One, [one] is it's not a [hearing] you know, as you know, and so you can't ask us questions of the merits of your petition and so on. No decision will be made during this meeting. And then[,] of course[,] we can ask clarifying questions of you to understand your position better and so on.

We will then conduct an internal deliberation on any additional information you gave us that's new since the last time. And of course, as you know[,] from previous times that we provide you information back on what the outcome of that deliberation was.

We previously met in May [May 2, 2013], and so it's been a couple of months, so perhaps there is additional information. There's a couple of things that I would just want to get on the record to make sure we do it here properly, and I'm going to read it, so I apologize for that, but it's for those that maybe aren't

familiar.

So[,] I'm going to highlight the scope of your petition that's under review and on March 21st, 2013 Mr. Paul Gunter of Beyond Nuclear and several other folks submitted to the NRC a petition under the 2.206 regarding General Electric [GE] Mark I and Mark II boiling water reactors [BWRs]. The petition has requested that the NRC revoke the operating licenses for GE Mark I and two [II] BWRs. And John has already talked about the ADAMS accession number for that, but for those of you that didn't get it, it's ML13084A218. And you can get the exact wording. It's much [more] in depth than what I just gave here.

A few of the highlights of NRC significant activity since the last time we met. We internally met on April 8th of 2013 to review the petition to determine if NRC immediate action was needed. As you know, the PRB determined that NRC immediate action was not needed on the basis that there was no immediate safety to licensed facilities or to the health and safety of the public.

Mr. Gunter, you were informed of this by an email dated April 17th, 2013. The ML for that is 13112A584.

On May 2nd of 2013, the PRB met with the Petitioners in the public meeting, and the transcript is

available underneath ADAMS accession ML13144A127.

On July 8th of 2013, the Petitioners were informed via email of the PRB's initial recommendation, and that is also underneath ML13190A262.

So with that, I'll turn it over to you, Paul, and you can introduce your folks.

MR. GUNTER: Okay. My name is Paul Gunter and I am director of the Reactor Oversight Project at Beyond Nuclear. I'm going to allow those who are here in the room that plan to speak to introduce themselves and then we'll move to the phone bridge.

MR. JUDSON: Tim Judson, NIRS and Citizens' Awareness Network.

MR. GUNTER: Okay. We'll move to the phone bridge.

MS. LAMPERT: Mary Lampert, Pilgrim Watch.

MR. GUNTER: You have to speak up.

DR. CUTHBERT: Dr. Lewis Cuthbert, Alliance for a Clean Environment, Pennsylvania, regarding Limerick.

MS. AZULAY: Jessica Azulay, Alliance for a Green Economy regarding Nine Mile Point and FitzPatrick.

MR. TAYLOR: Wally Taylor with the Sierra Club of Iowa regarding the Cooper Nuclear Station in

Nebraska and the Duane Arnold reactor in Iowa and the Quad Cities nuclear reactor in Illinois.

MR. BROWN: Jeff Brown, Grandmothers, Mothers and More for Energy Safety, GRAMMES, regarding Oyster Creek in New Jersey.

MR. JOHNSON: Chuck Johnson, Washington and Oregon Physicians for Social Responsibility regarding the Columbia Generating Station Nuclear Plant on the Columbia River in Washington State?[.]

MS. JOHNSTON: Gretel Johnston representing BEST/MATRR in North Alabama regarding the Browns Ferry Nuclear Power Plant.

MS. SACHS: Leslie Sullivan Sachs, Safe and Green Campaign and the SAGE Alliance regarding Vermont Yankee.

MR. GUNTER: Mary Lampert, are you on the line?

MS. LAMPERT: Yes, I wasn't I guess speaking loud enough. Mary Lampert, Pilgrim Watch in reference to the Pilgrim Nuclear Power Station, Plymouth, Massachusetts.

MR. GUNTER: Linda Lewison, are you on the line?

(No audible response.)

MR. GUNTER: Okay. Thank you. So if you

all would please mute your lines until I call your name out, I believe we're ready to proceed.

Okay. Thank you for the opportunity. The March petition requests the revocation of the operating license for the 31 General Electric Mark I and Mark II [BWRs] in the United States with unreliable pressure suppression containment systems. The Petitioners contend the current containment systems are not in compliance with the general design criteria and therefore they're licensing agreements. The Petitioners further argue that current corrective actions in response to the Fukushima Daiichi Lessons Learned Task Force as proposed by the NRC and the General Electric operators do not provide the public health and safety with timely, adequate and reasonable protection in the event of a loss of coolant accident.

The demonstrated failure of the GE Mark I and Mark II containment systems and the uncontrolled release of radioactivity from Fukushima underscore the Petitioner's requested action for the revocation of the unreliable Mark I and Mark II boiling water reactors in the United States.

I'd also like to request -- if we have our PowerPoint put up [Slides are in ADAMS Accession No. ML13298A085]. Is it? Is it up, or going up? It's up?

Oh, there it is. Thank you. Next slide, please.

The former NRC chairman, Gregory Jaczko, recently spoke in Tokyo on a panel before the Foreign Correspondents Club of Japan on September 24th, 2013 on the role of public involvement and the need to rethink nuclear power issues.

[Former] Chairman Jaczko said, quote, "One of the things that has become very clear to me and become clear to me after the accident began is that there are these kinds of nuclear accidents that really are economy-wide impact and simply unacceptable in Japanese society, in American society, and I think really all over the world. So it gives us an opportunity to take a step back and figure out ultimately how we go forward in a way that eliminates the possibility of these kinds of accidents. And one of the keys to that certainly is the active involvement and engagement of the public.

"Decisions about nuclear technology are often controversial. They are often very difficult involving sometimes science that has limited consensus among technical experts. And so it's incumbent to fully engage the public and be active on the part of government, on the part of utilities and on the part of citizens to be active participants in this endeavor.

"We know what the impact of the Fukushima

Daiichi accident was. It's 160,000 people evacuated from their homes, some, most of them still to this day. It's a significant land contamination event and it's an event that at minimum estimates have shown will impact the Japanese economy on the order of $500 billion U.S. I think if I do my math correctly, that's 50 trillion yen. And it's an accident that will leave a legacy of cleanup and decontamination and decommissioning that will last for decades," he said.

[Former] Chairman Jaczko continued, quote, "Ultimately we have to change the mind-set about people believing that accidents can happen. Before the accident too many people believed in that mind-set, and that is part of the challenge, part of the important need to change as we go forward. Fundamentally, as I've looked at this accident and as I've talked to people in communities that surround nuclear power plants in the United States, in Japan, it's become clear to me that we need to think about safety in a whole new way. We need to think about nuclear technology being used in a way that cannot lead to evacuations, it cannot lead to land contamination events. This is something that we wouldn't accept in any other kind of technology. And even though these events are anticipated and expected to be extremely rare, they still can happen, and they did

happen at Fukushima Daiichi.

"So as we go forward and as we think about nuclear technology and the use of nuclear technology, it's time to completely remove the possibility of severe accidents. That means a whole new way about looking and thinking about nuclear technology and it may mean rethinking about the reactors that are in operation today. This petition has challenged you, the Petition Review Board 'to change the mind-set that accidents cannot happen,' not to weigh continued operation and probabilities but in the demonstrated unacceptable performance and consequences of failure of this containment design.

"The Petitioners urge this review board to begin the rethinking by continuing to engage the public through this petition the challenges, the continued operation of this General Electric Fukushima-style reactor with the demonstrated unreliable and non-compliant reactor containment system.

"The NRC in its initial drafted determination states that the petition raises issues that have already been reviewed and evaluated by NRC. Therefore, your petition meets the criteria for rejection and requires no further review by the Agency. The Board's determination to discontinue its review of

this petition relies on the assertion that the continued operation of the GE Mark I and Mark II with the same reliable containment as Fukushima Daiichi poses 'no imminent risk to public health and safety' without provided its reference documents for its conclusive analysis based in large part on a prediction that a severe accident that challenges the vulnerable containment system will not occur at U.S. reactors.

"It relies in part upon NRC document SECY 2012-0157 that initially recommended the adoption for a prompt order to install severe accident-capable containment vents with high capacity radiation filters that was then voted down by a majority of the Commission in favor of an order for containment venting modifications for two hardened vents on the containment components without radiation filtration systems that will not be installed as protective features for a minimum of five years on the wet well and six years on the dry well.

"The [PRB] Board provides no specific response to any of the challenges raised in the petition or the questions and concerns raised in the May 2nd [2013] public meeting. In other words, the NRC rejects continued public involvement and engagement in this emergency enforcement action where current public health

and safety concerns continue to rely upon the same pressure suppression containment system demonstrated at Fukushima to have a 100 percent failure rate under severe accident conditions while NRC and industry move to exclusively engage to how, to what degree and at what cost they intend to restore some design requirement and licensing agreements that are the focus of this public petition.

"Given the evidence of this Agency's strong inclination for failing to meet its own deadlines for closing out decades-old open public health and safety issues such as fire protection for safe reactor shutdown systems and protecting recirculation for emergency core cooling systems following a severe accident, there is no reason for confidence in completion of the hardened containment vents without radiation filtration systems by 2018 and 2019. The public should be allowed to continue to independently and constructively engage the Agency's formal processes."

Next slide, please. "As established by Chapter 10 of the United States Code of Federal Regulations, Part 50, Appendix A, the General Design Criteria states, 'these general design criteria establish a minimum requirement for the principal design criteria for water cooled nuclear power plants similar

in design and location to plants for which construction permits had been issued by the United States," end quote.

The March petition contends that these minimum requirements include compliance with Criterion 16 for the unreliable GE Mark I and Mark II containment system. Criterion 16 reads, "Containment design. Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity and to assure that the design conditions important to safety are not exceeded as long as the postulated accident continues." In the event of a severe accident the GE Mark I and Mark II pressure suppression systems do not provide with a reasonable level of confidence an essentially leak-tight barrier against the uncontrolled release of radioactivity into the environment.

In addition to the widespread land contamination from the initial reactor meltdown and breaches of containment at Fukushima Daiichi[,] numerous news accounts include TEPCO and the Japanese government's failure to stop the ongoing release of radioactive contamination of ground water flowing from the reactor site in what can only be described as the uncontrolled release of radioactivity to the environment.

The Petitioners have previously presented a lack of assurance that in the event of a severe accident operator actions in response to such events such as the core breach of the pressure vessel will create pathways for radioactive releases when the dry well is flooded such that the venting through the current hardened wet well system and radioactivity scrubbing is going to be precluded. The Petitioners have also previously presented the issue of containment bypass in both the Mark I and Mark II containments that can lead to unfiltered radioactive releases to the atmosphere, yet the NRC determination to suspend its review provides no response and is silent on how these issues and vulnerabilities impact public health and safety with the current operations today.

As the Petitioners have presented, however, the current NRC Enforcement Action 2013-0109, which implements the 2018 and 2019 hardened vent completion schedule for these unreliable Mark I and Mark II containment systems, does not require any implementation or installation of an enhanced radiation filtration system to comport with General Design Criteria 16 other than to pursue it through an indeterminate rulemaking process rooted in a cost benefit analysis.

Next slide. Yet in contrast to NRC Order

Enforcement Action 2013-0190, which accommodates the continued operation of U.S. GE boiling water reactors with a minimum six-year timeline for designing and installing a hardened vent system without an enhanced radiation filter as a provision of restart for Japanese boiling water reactors, the nuclear regulatory authority [Japanese Nuclear Regulatory Authority (NRA)] has issued a specified set of countermeasures to severe accidents that include severe accident-capable hardened containment vents with external high-capacity radiation filtration systems. And this is noted in the outline of the new regulatory requirements for light water reactors, April 2013 severe accident measures requirements as part of the NRA's ongoing enforcement of nuclear regulatory requirements for commercial nuclear power plants.

And we also note here; next slide, that the -- what you're looking at is essentially the hardened vent severe accident-capable with a high-capacity radiation filtration system which is now under construction or at ground breaking for 14 boiling water reactors in [Japan] the United States. And this is part of the follow-on effort that AREVA and Hitachi GE have undertaken in a June 2013 press announcement. But it is our understanding that the Shimane nuclear units 1 and

2, including the Mark I there, will have a hardened severe accident-capable vent with a radiation filtration system to be completed by 2014. The Shika BWRs, including the Mark I there, is to be completed by 2015 and additional ground breaking activities at Tokai 2, Hamaoka, the Higashidori and Onagawa and the Kashiwazaki-Kariwa units where we have the hardened vents underway as a part of the restart protocol.

So while Japanese nuclear reactors are being required to install as countermeasures these hardened filtered containment vents for completion as early as 2014, U.S. reactors continue to operate with NRC permission and allowed to stall for a minimum of six years the same backfit without filters on identical technology. In our view[,] we believe this to be an effort to avoid a safety-related cost consequence on already economically marginal power plants.

Next slide, please. We would also draw the [PRB] Board's attention to Criterion 50. You're quite familiar with this as the containment design basis that requires that the reactor containment structure shall be designed so that the containment structure and its internal components can accommodate without exceeding the design leakage rate and without sufficient margin the calculated pressure and temperature conditions

resulting from any loss of coolant accident.

The operative word here in Criterion 50 of course is that the containment design shall "accommodate" the pressures and temperatures generated by loss of coolant accident. In any other context[,] "accommodate" is defined to mean to provide and have room for, and in the context of nuclear power and the public health and safety, to provide a place to stay for radioactivity generated in a severe accident and reactor core damage. However, the Mark I and Mark II pressure suppression system is not expected to accommodate the loss of coolant accident pressure and temperature. Without venting the undersized containment, in order to make room for increasing temperature, pressure and explosive hydrogen gas which brings the public's attention back to General Design Criterion 16 and the lack of compliance with the requirement for an essentially leak-tight barrier against the uncontrolled release of radioactivity.

Next slide, please. In addition to Fukushima[,] the failure to accommodate public health and safety has another infamous historical context. The White Star Line, the operator of the RMS *Titanic*, based in a cost-cutting exercise and faulty assumptions that the luxury liner was imperishable and that catastrophe

was so highly improbable that the company decided it would only need to carry 20 lifeboats to accommodate its passengers and crew of 2,207 on the maiden voyage. Practically ever school-aged child is familiar with this example of the failure to accommodate enough public health and safety in the preparation for even the most remote and improbable tragedy.

The current NRC Action Order EA 2013-109 does not provide for compliance with the general design criteria and minimum requirements do not order or provide for the amplification of the general design criteria in the aftermath and consequence of the Fukushima Daiichi nuclear accident.

So we ask who is being accommodated by the Agency's current half-measures and slow walk to address the unreliable containment issue. We urge you not to be part of this mind-set about people believing that accidents can't happen. As your own former NRC Chairman Gregory Jaczko has now warned, we urge you to rethink, reconsider and accept this petition for emergency enforcement action for the requested action to revoke the operating license of all GE Mark I and Mark II boiling water reactors. Thank you.

And we'll now hear from Jim [Tim] Judson.

MR. JUDSON: Hi. Thanks. So I would like

to address some broader concerns about the way that the NRC has been treating the questions regarding Mark I and II boiling water reactors in the post-Fukushima environment. And in particular, you know, I think the Petitioners recognize that the industry is -- you know, that these regulatory decisions are not happening in a vacuum, and in fact are happening, you know, in a period of what's, you know, beyond the questions raised by the Fukushima accident, which, you know, really is sort of a historical, you know, sort of financial crisis that the industry is in at the moment. And we're very concerned about the way that the NRC is taking up these issues in that context.

In particular, you know, we appreciate that NRC has various directives and imperatives by which it takes regulatory action and balances the need for sort of enhancing public safety and protecting the public health with competing concerns regarding issues, you know, such as regulatory burden to the industry that it regulates.

Our concern is that the latter imperative has completely overshadowed the former in the way that the decisions are being made, and in particular[,] the ways in which the issues raised by our petition have been treated. And in regard to that[,] I would like to submit

some new information that's occurred since we initially submitted the petition, which is a February 20th, 2013 report issued by UBS Investment Research, which is a financial investment research firm, that covers, you know, among other things the nuclear industry and has been devoting a lot of attention to the economic circumstances of nuclear power plants given the type of market dynamics that we see prevailing across the country, an [and] in particular in states, you know, where the electric markets are deregulated. But I think what we see is these same dynamics spreading into states that are utility regulated on the basis of what they consider reasonable costs for their rate payers to bear.

This February 20th [2013] report by UBS, which is entitled, "In Search of Washington's Latest Realities: D.C. Field Trip Take-Aways," [On October 4, 2013, NRC contacted Julien Dumoulin-Smith of UBS via phone regarding this UBS report. UBS considers this report proprietary via an email dated October 24, 2013 (ADAMS Accession No. ML13304B438). The proprietary UBS report is contained in ADAMS Accssion No. ML13297A117).] was issued after researchers at UBS visited with the Nuclear Regulatory Commission and the Department of Energy regarding a number of the issues that they see as, you know, sort of critical pending issues confronting the

nuclear corporations that they monitor investments in.

In particular[,] this report talks about the NRC's inclinations in dealing with the hardened containment vent issue in Mark I and Mark IIs, which Paul referenced in his presentation. And they had this to say regarding their anticipations of what NRC's action was going to be on the hardened containment vent issue following this meeting: And I quote here from the summary on the first page of this report.

"A nearer-term mild positive is our belief NRC is likely *not* to require filtered vents given their material expense early next week." As I said[,] this report was issued on February 20th, [2013] and as we know[,] NRC the following week or shortly thereafter did decide to back off on requiring the installation of filters on containment vents in Mark I and IIs.

They go on to discuss this in greater detail on page 5 of this report under a section called, "Look for a Decision on Filtered Vents Next Week. Expect Positive for Generators." Quote, "We look forward to [for] a decision from the NRC next week on proposal to require the installation of hardened <u>filtered</u> vents on all Mark I and II units. We increasingly believe the NRC may *not* require these added precautions given the added stress this places on the incumbent portfolio[,] with NRC

staff initially estimating these vents would cost $15 [Mn] million, however, multiple other sources estimate the true cost of such installation costs could be up to $40 [Mn] million per unit. Given the [qualitative] quality of factors cited as part of the cost-benefit analysis used to justify their [the] retrofits, as well as the fragile state of affairs among existing units[,] it appears this [the] effort does not meet the usual rigor of a quantitative cost-benefit analysis used to justify such investments."

No [Now,] we recognize that this is not an NRC document; this is a report, you know, by a party that the NRC met with, but we consider, you know, especially given the accuracy of the prediction that UBS had about the NRC's ultimate action on this issue that the underlying rationale for the taking of that action is extremely disturbing. And the reason[,] in particular[,] that it's disturbing is that first of all the figures that are being cited here, whether it's $15 million or $40 million, are not in the way of enormous capital investments that are typical in this industry. And in fact[,] given the benefits that would accrue to preventing the uncontrolled release of radiation in an accident like we saw take place multiple times at Fukushima in 2011, this is a very reasonable cost for the

expense that's been created as a result of not having such reliable hardened containment filtered vents.

But[,] in particular[,] the consideration of the impact that these type of investments might have on the industry at this particular time is extremely troubling and we want the NRC, you know, to be able to reconsider the way that it evaluates regulatory burden, in this matter in particular, but other matters more broadly.

What I would like to distribute -- and I'm sorry I didn't make enough copies for everyone at the table. I wasn't sure how many NRC staff would be here. But some charts detailing the exposure of the nuclear industry to the type of financial risks that are present at this time [The handout is contained in ADAMS Accession No. ML13298A098].

There's two charts on this paper, you know, looking more generally at the issue of how many nuclear reactors in the U.S. are in states where the electricity markets are deregulated. And in particular, the second chart looks at the number of reactors, you know, that are the subject of this petition that are also operating in deregulated electricity markets.

What you see plainly is that the majority of the reactors operating in this country; namely 57

percent, are operating in states with deregulated electricity markets which are experiencing unprecedented low market prices for electricity and placing incredible pressure on the industry financially.

What you see in addition is that this pattern is even more pronounced with respect to Mark I and II reactors where 20 of the 31 Mark I and IIs in the U.S. are operating in states where the electricity markets are deregulated, or, in the case of Vermont Yankee, are operating as a merchant reactor in a state that hasn't deregulated.

The reason that we raise this is because, you know, if the NRC is making decisions about safety post-Fukushima and considering investments like $15 million, $40 million, which as I said are, you know, within the realm of what's typical within the industry -- they're not outrageous costs for capital expenses in the industry, but these are being cited as potential risks for reactor closure, that the NRC really -- you know, I mean it's very troubling if the NRC is actually taking those circumstances into account and deciding not to require safety improvements and to take these kind of enforcement actions [The transcript was forwarded to the NRC Office of Inspector General for review].

You know, these plants in these markets are

experiencing large structural deficits in their operating expenses. The cash flow deficits that many of these Mark Is are experiencing, notably Vermont Yankee, which has recently been announced to close, but also other reactors: Fitzpatrick, Pilgrim, Nine Mile Point 1, and again these other, you know, 16 other Mark I and II reactors in deregulated states. Sort of the regulatory bar is being lowered to a really frightening level if the NRC is taking into account the economic circumstances of this industry at this time in making these kind of regulatory decisions. And we would urge the NRC to not consider the regulatory burden of these expenses in making these decisions going forward.

If the industry, you know, ends up closing reactors because they can't afford to meet basic safety standards like those that are being required in Japan, then in a certain sense that's the gamble the industry accepted by moving into deregulation. I mean operators like Exelon and Entergy entered into deregulated markets and acquired fleets of reactors on that basis and this is the risk that they assumed, and we did not expect when that happened that the NRC would base regulatory standards on the volatility of electricity market which it doesn't even regulate itself.

MR. GUNTER: Thank you. Jessica Azulay,

AGREE?

MS. AZULAY: Yes, can you hear me?

MR. GUNTER: Speak a little louder.

MS. AZULAY: Can you hear me?

MR. GUNTER: Yes.

MS. AZULAY: Okay. Great. So my name is Jessica Azulay. I'm calling in from Syracuse, New York where I, along with about a million people, live within 50 files [miles] of two Mark I boiling water reactors and one Mark II boiling water reactor, which are all located in Scriba, New York on the shore of Lake Ontario.

I represent the Alliance for a Green Economy, a coalition of grassroots organizations in New York who together represent thousands of New Yorkers concerned about the risks posed by the nuclear plants in our state.

I'd like to thank the NRC for the opportunity to speak today, and I'd also like to thank Beyond Nuclear and my fellow nuclear watchdogs around the country who are taking part in this very important hearing [This is not a hearing; this is a public PRB meeting under the 2.206 petition process].

We[,] at the Alliance for a Green Economy[,] have reviewed the record on the Mark I and Mark II reactors. We've looked at the NRC documents going back

decades. I have personally reviewed over 1,000 pages released through a Freedom of Information Act request about the containment and dangerous venting plans for the FitzPatrick reactor, which is one of the Mark I boiling water reactors in my region. We have carefully reviewed the post-Fukushima reports from the NRC and the orders NRC has given for installing and improving vents on FitzPatrick, Nine Mile 1 and Nine Mile 2, and all the other Mark I and Mark II reactors in the U.S.

This record clearly shows that the Mark I and Mark II reactors by their original design do not comply with the NRC's General Design Criterion 16 which requires a reliable leak-proof containment to protect the public from radiation exposure during an accident. The record also clearly shows that this design flaw has never been addressed in the Mark II reactors like Nine Mile Point 2. It was not fully addressed in the Mark I reactors that installed vents in the early '90s like Nine Mile Point 1 and it was not fully addressed at FitzPatrick also here in Central New York, the only Mark I in the U.S. that doesn't have a hardened vent to the stack, and instead has a reckless plan to blow the doors off the standby gas treatment building in order to create a so-called vent cap if it's needed. So in their current state[,] none of the boiling water reactors in Central

New York meet General Design Criterion 16.

What's frustrating about this case is that the NRC essentially agrees with us that right now these reactors do not offer adequate protection from an accident. And yet[,] instead of true protection from the very real threats of today[,] we are offered the promise of improvements tomorrow. And by tomorrow[,] I mean five or six years from now, and maybe even longer.

In the order EA 13-109 issued on June 6th of this year, NRC states that implementation of new vent requirements are, quote, "necessary to provide reasonable assurance of adequate protection on the public health and safety." The order also states that one of the factors that led to the order is to enhance the Mark I and Mark II containments, quote, "by addressing the relatively high probabilities that those containments would fail should an accident progress to melting the core," unquote.

Later in the same document[,] it is again reiterated that, quote, "these modifications are needed to protect public health and minimize danger to life or property because they will give licensees greater capabilities to respond to severe accidents and limit the uncontrolled release of radioactive materials," unquote.

Lest you accuse me of taking these quotes out of context, I will note that in the same order it says, quote, "The NRC staff has determined that continued operation does not pose an imminent risk to public health and safety." But then in the same sentence it says, "However, the additional requirements outlined in EA 13-109 are necessary in light of insights gained from the events at Fukushima Daiichi.

I'm sure you can understand that these seemingly contradictory statements are incredibly confusing and frustrating to people like me who are trying to understand the risks in our communities. How can you say that these reactors are safe to operate now, but that the new vents you'll require are, quote, "necessary to provide reasonable assurance of adequate protection to the public health and safety in light of the events at Fukushima?" It doesn't make any sense.

The first part of this contradictory statement that these reactors don't pose an imminent threat is offered as one of your justifications for denying our petition. The statement is negated by the mountain of evidence going back decades and by the NRC's own justification for requiring yet more upgrades trying to fix the flaws in the design.

You might say that NRC is addressing our

concerns through another process, the process by which you'll require new vents to be installed on the plants in question. But one of the main reasons we filed this emergency enforcement petition is because the process is allowing dangerous reactors to stay online and continue to threaten us right now and for the foreseeable future, for the several years it will take before the upgraded vents are actually installed, if they even are installed on the scheduled that you've laid out.

Meanwhile, there's been a decision by the Commission so far not to require filters on the vents to protect us from radiation if the vents have to be used once they're installed, which means these new vents will not bring the plants up to regulatory compliance on a leak-proof containment.

You can also understand that we are skeptical over whether these new so-called reliable vents will be truly reliable since the last round recommended by NRC proved not reliable at Fukushima in their first real world test. These issues are at the heart of your petition.

There is a saying that justice delayed is justice denied. I believe similarly protection delayed is protection denied. The NRC's job is to protect us from the possibility that something could go wrong at one

of these reactors. It is not controversial at this point to say that NRC itself admits that nuclear technology is not perfect and that things do sometimes go wrong and that accidents can happen even if they're unlikely. That's why a reliable leak-proof containment is required by law in all operating nuclear reactors.

This is not a hypothetical scenario for me and my neighbors. Just last week[,] we found out that due to a fairly small human error and inadequate procedures in April of 2013 [April 16, 2013 – see NRC Integrated Inspection Report, dated September 23, 2013 (ADAMS Accession No. ML13266A237) for details] Nine Mile Point lost power to its cooling mechanisms and came within less than two hours of boiling and within nine hours of fuel exposure that could have led to a meltdown. And because containment was not functional at the time due to refueling activities, NRC was not sure there would have been enough time to evacuate if the accident had progressed. This is a reminder to all of us how important regulation on containment is and how every day we live exposed to the risk of a nuclear accident that could destroy Upstate New York. We're asking you to shut these plants down before that happens.

Your regulation doesn't say that a reliable leak-proof containment should be planned to be in place

at some point in the future to protect us from accidents. It says reactor containment and associated systems shall be provided to establish an essentially leak-proof barrier against the uncontrolled release of radioactivity to the environment.

In recommending that our petition be rejected[,] you have offered no evidence that a leak-proof containment exists for these plants in today's reality, nor have you assured us that we will have truly leak-proof containment in the future. You have only offered us the promise that in several years we might get an improvement to the currently unreliable vents. This is protection delayed and protection denied. I strongly urge you to reconsider your initial recommend[ation] and accept our petition for review. Thank you.

MR. GUNTER: Thank you, Jessica. We'll now hear from Lewis Cuthbert.

CHAIRMAN DAVIS: Before you do could you ask whoever doesn't have their phone muted to please mute it, because there's a lot of interference on the line right now.

MS. LEWISON: And also, Paul, this is Linda Lewison in Chicago, that I am online. Can you --

MR. GUNTER: Okay. Very good.

MS. LEWISON: Can you hear me?

MR. GUNTER: Yes, we can.

MS. LEWISON: Okay.

MR. GUNTER: But we would like not to hear the background noise. Can you all please mute your lines? Star 6. Star 6, please. Thank you.

We still have somebody online without their mute and with background noise. Please mute your line.

DR. CUTHBERT: Hi, can you hear me?

MR. GUNTER: Is this Lewis?

DR. CUTHBERT: Yes, it is, Paul.

MR. GUNTER: Go ahead, Lewis. And thank you for whoever muted their line.

DR. CUTHBERT: Okay.

MR. GUNTER: Proceed.

DR. CUTHBERT: Good afternoon. Thank you for the opportunity to share some perspective and comments on behalf of the community that surrounds the Limerick Nuclear Generating Station in Limerick, Pennsylvania. My name is Dr. Lewis Cuthbert. I'm the president of ACE, the Alliance for a Clean Environment.

After 14 years of investigating Limerick Nuclear Plant, the Alliance for a Clean Environment has compiled a body of evidence that strongly supports the Beyond Nuclear petition from Paul Gunter --

MR. GUNTER: Lewis?

DR. CUTHBERT: Yes?

MR. GUNTER: Are you still there? Okay. I was just checking.

DR. CUTHBERT: Yes, I am. Shall I continue or start again, Paul?

MR. GUNTER: Proceed.

DR. CUTHBERT: Okay. After 14 years of investigating Limerick Nuclear Plant, the Alliance for a Clean Environment has compiled a body of evidence that strongly supports the Beyond Nuclear petition from Paul Gunter calling for the emergency closure of GE boiling water reactors.

Limerick's Mark II reactors have dangerous and unreliable containment structures similar to those that melted down at Fukushima. Limerick clearly presents undue and unacceptable risk to public health, safety and the environment. Radioactivity released in an accident at Limerick could destroy the health and lives of millions of people living in the greater Philadelphia region. Over 8 million people live within 50 miles of Limerick. We cannot evacuate safely.

NRC's failure to require immediate installation of vents with filters has been negligent beyond belief, especially when NRC's own staff said vents

without filters could become a radioactive fire hose in the sky and that filtered vents should be installed regardless of the cost to industry.

Many structural flaws at Limerick Nuclear Plant were defective from the beginning and cannot be fixed. NRC is sweeping serious problems under the rug further risking unnecessary radioactive catastrophe [The transcript was sent to the NRC Allegation Program for review]. NRC is failing to address Limerick's flawed design issues as well as its history of multiple reactor shutdowns, many of which are unexplained, plus other serious problems and violations.

[Executive Director of Operations] Commissioner Borchardt's June 25, 2013 [ADAMS Accession No. ML131400044], letter to ACE suggests that the NRC is not taking risk of meltdown at Limerick or threats to public health and safety seriously enough. In a 21-page response letter, 8/5/13, to [Executive Director of Operations] Commissioner Borchardt ACE identified a body of evidence showing why NRC cannot guarantee public safety from Limerick operations and why NRC should close Limerick. NRC repeatedly accommodates Exelon's financial interests but further jeopardizes public health and safety in the process. Major issues for our community include the following: Exelon repeatedly

fails to comply with NRC regulations at Limerick. Then NRC weakens regulations and amends Limerick's operating licenses based on Exelon's outdated and faulty assumptions even though Exelon's self-serving claims are often contraindicated by their own reports to NRC. Exelon did not provide testing that proved Limerick's two reactors have not already become dangerously brittle enough to either crack or shatter.

After 28 years of operation[,] there are serious reactor issues not adequately addressed to assure there will not be a loss of coolant accident that could lead to a meltdown. In fact, risks are increasing. Limerick's upgrades have increased reactor dome pressure and corrosion levels, according to GE. Limerick is also using new more powerful GE fuel which produces more radiation, more heat and more stress on aging equipment.

Limerick's boiling water reactors involve un-correctable degradation. The nuclear industry itself admitted reactors are too costly to replace. On June 1, 2011 [ADAMS Accession Nos. ML111780308, ML112160612, and ML112410442], a petition was filed against Exelon about Limerick's repeated shutdown problems and serious reactor and system degradation. NRC dismissed it [on September 2, 2011 (ADAMS Accession No. ML112371884)].

Limerick's shutdown safety valves and control rods may not operate reliability [reliably] to prevent meltdowns. That is unacceptable. Limerick's spent fuel pools, like those at Fukushima, are dangerously located on top of reactors, but Limerick's radioactive risks are worse. Pools are packed far beyond design capacity and documented to have been constructed with sub-standard cement.

NRC documented corrosion and loss of thickness in Limerick's fuel pools at rates far higher than original calculations. Pitting corrosion was 2 to 10 times higher than general corrosion. Exelon requested a delay of over a decade to recoat the pools even though NRC told Exelon that to delay fuel pool recoating was unacceptable. Inexplicably[,] NRC caved and revised Limerick's regulations allowing Exelon to delay recoating for more than a decade.

There is an earthquake fault under Limerick with four others within 17 miles. The recent Virginia earthquake triggered seismic reactor alarms at Limerick, and the risk to Limerick was misleading because some monitors were not operable.

And finally, Limerick is surrounded by one of the most densely populated areas in the nation and cannot be safely evacuated. In 1980, NRC stated that

Limerick had double the population density within 30 miles considered safe for evacuation even back then. Now population density is four times that number. Montgomery County officials in Pennsylvania expressed concerns to NRC about the impossibility of safe evacuation due to a lack of and inadequate infrastructure. Exelon's 2012 evacuation time estimate for Limerick is both highly unrealistic and unworkable.

And in conclusion[,] I'd like to suggest on behalf of millions of residents near and around the Limerick Nuclear Generating Station that we believe the evidence shows why it is imperative for NRC to revoke Limerick Nuclear Plant's operating licenses and we ask that all other Mark I and II reactors currently in operation in the United States also close at the direction of the NRC. Thank you for your consideration.

MR. GUNTER: Thank you, Lewis. Let's see, before we hear from the next speaker I have been passed a note that I misspoke in my testimony and that I stated that there were 14 BWRs in the United States that were undergoing the filtered vent [modification]. And my intent is to correct the record to say that those were 14 BWRs in Japan. So thank you.

Okay. We have background noise on the line again. Can you please mute if you're not on as a speaker?

Can you please mute your line? Star 6.

Can we hear from Chuck Johnson with Washington/Oregon PSR?

MR. JOHNSON: Yes, thank you. My name is Charles K. Johnson and I'm the director of the Joint Task Force on Nuclear Power for the Oregon and Washington chapters of Physicians for Social Responsibility. My comments follow on the previous comments in the May [Public PRB meeting held on May 2,2013] public hearing [that was not a hearing; it was a public PRB meeting held in the 2.206 petition process] of John Pearson, M.D., our Oregon PSR chapter president.

Thank you for the opportunity to present to the Nuclear Regulatory Commission regarding the issue of the demonstrably inadequate containment structures designed into the GE Mark I and Mark II nuclear power reactors proven to be vulnerable to failure by the multiple accidents in Fukushima, Japan and the plan to allow unfiltered vented radioactive effluent from the reactors to be pipelined into communities surrounding them in the case of a worst case accident.

As it's been pointed out by Beyond Nuclear and the rest of the co-signing groups in the petition for revocation of the licenses for these inherently dangerous reactors, this plan for dealing with severe

accident conditions will deliberately defeat the licensed condition for maintaining public health and safety through defense-in-depth protective reactor systems including, quote, "an essentially leak-tight valve against the controlled release of radioactivity to the environment," end quote, associated with the occurrence of reactor core fuel damage.

Further, as previously stated, this constitutes violations of these reactors' licensed condition as required under 10 C.F.R., Appendix A, General Design Criteria 10 and 16, and the operating licenses should therefore be revoked.

We would like to emphasize three points specific to our own reactor of concern, the Columbia Generating Station, also known as the Washington Nuclear Plant No. 2, located on the Hanford Nuclear Reservation along the Columbia River 10 miles north of Richland, Washington, each of the potential pathway by which an accident could occur that is sufficient to cause the plan for emergency breach of containment envisioned by the NRC policy when it decided to allow the Columbia Nuclear Plant to construct unfiltered vents to its GE BWR Mark II containment design reactor which would intentionally release radionuclides in quantities well beyond what the plant is licensed to release into the surrounding

communities and the Pacific Northwest as a whole.

These three points are: (1) Geological knowledge of the region has improved immensely with U.S. Department of Energy studies showing that ground motion in an earthquake is now potentially three times greater than was known and planned for when the Columbia Nuclear Plant was built; (2) volatile nuclear facilities exist nearby on the Hanford Nuclear Reservation that could also release large quantities of radioactive material in an earthquake, a terrorist attack or a human-caused accident which could cause the plant site to become so radioactively hot that operators might be at immediate health risk which could lead to an accident at the Columbia Plant; and (3) a breach of the Grand Coulee Dam would result in power cuts to the site that could last for many days, would include the destruction of power and water intake structure, roads and entire cities in the path of a giant wall of water which would inundate the base of the ultimate heat sink in the Columbia Nuclear Plant itself.

Beginning with point No. 1, I would like to note that the Oregon and Washington chapters of Physicians for Social Responsibility sent a letter to the NRC Chairwoman, Allison Macfarlane, on July 4th [19th], 2013 [ADAMS Accession No. ML13210A397]. It outlined our

concerns about the adequacy of the Columbia Nuclear Plant to withstand an earthquake in light of geological research for a federal high-level waste treatment facility less than 10 miles from the plant that has now been required to meet ground motion standards three times those that the Columbia Nuclear Plant was designed to meet. The new earthquake data available on the Hanford Nuclear Reservation was not considered during the May 2012 relicensing of the Columbia Nuclear Plant because it was said to be part of the, quote, "ongoing regulatory oversight," end quote.

We've not had a reply from Chairwoman Macfarlane or the NRC to our request for a meeting with her [Chairman Macfarlane responded by letter dated September 26, 2013 (ADAMS Accession No. ML13224A360)]. To date, the NRC has not explained their unconscionably lax, quote, "regulatory oversight," end quote, of the impact of new geologic data some of which has been widely known to Washington State geologists for over a decade.

The original assessment of the plant site in 1981 found that there was a low annual probability of exceedance [exceeding], 0.00011, of the 0.025 g laboratory ground motion threshold of the safe shutdown earthquake for the Columbia Nuclear Plant. It was licensed on that basis and this assessment has not been

changed since.

In the 30 years since the plant was licensed[,] there have been numerous geologic investigations on the Hanford Reservation and surrounding region conducted by the U.S. Geological Survey, federal contractors, PNNL, Pacific Northwest National Laboratory, the State of Washington, and universities. The outcomes of these studies have piled up the geologic evidence that indicates the original Columbia Nuclear Plant's seismic risk assessment significantly underestimated the potential risks to the reactor and associated structures.

Among the evidence so far not considered by the NRC regulators to our knowledge is the following: More detailed mapping of folds and faults in the region surrounding the Columbia Nuclear Plant site now exist. The folds and faults considered in the original seismic risk assessment have significantly longer lengths and evidence of being geologically young indicating relatively recent earthquakes. Longer fault lengths also indicate that these longer faults may be capable of producing much larger magnitude earthquakes. Additional Yakima fold and thrust belt structures were identified that could pose an earthquake risk to the Columbia Nuclear Plant, including Frenchman Hills,

Manastash Ridge, Toppenish Ridge, Columbia Hills, Hog Ranch-Naneum Ridge and Hite Fault.

The potential significance and importance of a magnitude 6.5 to 7.4, quote, "1872 earthquake," end quote, the largest historical earthquake to hit the region, to the seismic risk analysis of the Columbia Nuclear Plant was greatly reduced because the assumed location of the epicenter for this event was more than 180 miles away than was determined by Bakun et al in 2002. The revised location for the epicenter at the southern end of Lake Chelan is approximately 99 miles from the Columbia Nuclear Plant, rather than an additional 180 miles away as was believed at the time that they set the standards for the plant.

Subsequent seismic risk assessments performed by the U.S. Department of Energy for the Hanford site that factored in newly available structural geology data and generated estimates at peak vibratory ground motions were significantly higher than those used to establish the Columbia Nuclear Plant's license in 1981. The Geomatrix study in 1996 established peak vibratory ground motion of 0.50 g on the Hanford site 10 miles from the Columbia Nuclear Plant, double that of the estimate of the Columbia Nuclear Plant license.

New information about earthquake hazards

since Geomatrix forced the U.S. Department of Energy to suspend work on their waste treatment plant, WTP, facility to allow for new data collection and updated seismic risk assessment. Three studies, Youngs, 2007; Rohay and Brouns, 2007; Rohay and Reidel, 2005, determined that the previous vibratory ground motion estimate needed to be increase [increased] to 0.8 g causing the U.S. Department of Energy to order significant modification to the WTP facility. That's three times larger than the Columbia Nuclear Plant was required to meet. That facility is 10 miles away from that plant.

A July 2010 letter from the Nuclear Regulatory Commission to the operator of the Columbia Nuclear Plant, Energy Northwest, requested that they address their concerns that the most recent seismic risk study in 1995 for the Columbia Nuclear Plant failed to address more recent geologic findings and increased seismic risk as determined for the WTP facility. Energy Northwest replied that the Columbia Plant was, quote, "an increased distance from the nearby seismic sources and had different sub-surface geology conditions." These conclusions are not born out by geological observation in any study today, and yet the NRC has not required any modification be made to the Columbia Nuclear Plant to

address the increased risk from the strong seismic vibratory ground motion. In 2011, the U.S. Geological Survey published a paper that will likely fundamentally change several key assumptions that past seismic risk assessments were based upon. The USGC found that the maximum length of some of the Yakima fold and thrust belt structures have been previously underestimated. Their paper focused on the Umtanum Ridge which they were able to trace through the Cascade Range where it merges with active faults in the Puget Sound area. The Umtanum Ridge structure, which terminates less than five miles north of the Columbia Nuclear Plant, went from 77 miles to more than 124 miles in length, greatly increasing the known potential for large earthquakes.

They found that the structure of the Umtanum Ridge was deeper than previously assumed and can produce larger magnitude quakes as a result. They found evidence that the Umtanum Ridge of trenching surface scarps indicating that this structural feature may be more seismically active than previously believed. This new information will be factored into the new probabilistic seismic hazard analysis being conducted by the U.S. Department of Energy for the Hanford site scheduled to be completed in 2014.

None of this new information has been addressed by Energy

Northwest and yet the Nuclear Regulatory Commission allows them to continue to operate the Columbia Plant at full power under their clearly inadequate original licensed earthquake standards.

So far in response to the post-Fukushima requirements[,] Energy Northwest has in its walk-down in April of 2011 of the Columbia Nuclear Plant determined that they do not even meet these inadequate standards finding that, quote, "the licensee determined that the emergency response facilities, the power makeup system and the fire protection systems were not seismically qualified," end quote. And that, quote, "floor drain isolation valves and sump level switches used to mitigate internal flooding were not seismically qualified," end quote.

Another seismic walk-down in November 2012 showed a total of 109 potentially seismic adverse conditions. To date[,] we have nothing in writing to show that these problems have been addressed and that they have met the already inadequate 1983 standards.

Regarding point No. 2, the potential interactivity of an accident on the Hanford Nuclear Reservation, it should be noted that nine nuclear reactors and four reprocessing plants at Hanford produce nearly two-thirds of the plutonium used in the United

States for government purposes.

These site operations also created a large volumes of radioactive and chemical waste. Some contaminants were released into the environment exposing people who live downwind and downstream. Other contaminants were stored. The last reactor was shut down in 1987 and the last reprocessing plant closed in 1990. Most of the human-made radioactivity and about half of the chemicals remaining onsite are kept in underground tanks and surface facilities. The rest exist in the soil, groundwater and burial grounds.

Hanford contains about 40 percent of all of the radioactivity that exists across the nuclear weapons complex. More than 1,600 waste sites have been identified on Hanford. Contained waste is held inside structures such as underground tanks, buildings and concrete basins. There are more than 500 waste facilities at Hanford.

The primary threats of large-scale radioactive contamination that could become an immediate health hazard to Columbia Nuclear Plant workers are: (1) The K basins near the closed K reactors in which a shallow pond prevents deteriorated used fuel rod material from catching fire and sending a cloud of intense radiation across the Hanford site. If the pool

were to crack and drain, it would take minutes for a fire to break out threatening workers throughout the site and citizens beyond it.

(2) the waste encapsulation storage facility, WESF, which contains 1,936 stainless steel capsules holding 130 million curies of radioactive cesium and strontium plus their decay products. These are kept in water-filled pools in the WESF adjoining B plant in the 200 area. These capsules have the largest concentration on earth of strontium-90 and cesium-137, are more radioactive than spent fuel and are held in a 50-year-old pool with no safety backups and no pretense of containment. This pool is not rated to withstand even a mild earthquake.

(3) The waste treatment plant, also referred to as the Vitrification Plant, or Vit Plant, is being built at Hanford to harden chemical and radioactive tank wastes left from the plutonium extraction from spent nuclear fuel. It has been delayed for seismic study, as previously mentioned, but also due to whistle blower complaints that the plant may be subject to hydrogen and criticality explosions that could release large amounts of life-threatening radioactive material onto the site and the surrounding community.

The Hanford Nuclear Reservation contains

330 million curies of total radioactivity, less than the 361 million curies of total radioactivity at the Columbia Plant site, but almost double the amount of radioactivity available for release.

As mentioned above, some of these curies are contained in materials that are not stored in a way that could guarantee they are not subject to a catastrophic release. If an earthquake, fire, terrorist attack, human or mechanical error caused a catastrophic release, it may force workers to leave the Columbia Nuclear Plant facility in order to prevent an immediate loss of life putting the plant itself at risk for a catastrophic accident.

Finally, the threat of flooding at the site must be considered as potential accident pathway. The NRC's own studies, most recently the final safety analysis report of the Columbia Generating Station in December of 2012, of the potential for a catastrophic Grand Coulee Dam terrorist attack scenario would put the city of Richland under a 15-foot wave of swiftly churning water and debris wiping out power infrastructure and all water intake equipment from along the Columbia River.

The Columbia Nuclear Plant site is located far enough above the river that it would avoid complete inundation, but the backup water supply, the ultimate

heat sink contained in pools slightly below grade from the reactor and turbines would be grazed by the high water point possibly doing damage to the structural integrity as well. The combination of a lack of off-site power for an extended period of time, the cut off of the primary water source and potential threat to its backup and the massive destruction of local infrastructure, roads, bridges, human organizational systems could lead to a lack of power, water or both to continue the critical cooling of the reactor core. We know from Fukushima what that situation leads to with a GE BWR Mark I or Mark II containment.

A letter from NRC employee Richard H. Perkins, PE of the Division Risk Analysis Office of Nuclear Reactor Regulation, dated September 14, 2012 to the NRC's Office of the Inspector General, exposes the concealment of this, quote, "significant nuclear safety information from the U.S. Nuclear Regulatory Commission." The Columbia Nuclear Plant was one of the plants named as threatened in the suppressed study entitled, quote, "Flooding of U.S. Nuclear Power Plants Following Upstream Dam Failure [ADAMS Accession No. ML12188A239]."

As has been observed by many nuclear experts, the location of Fukushima next to the ocean and

the fact that the wind carried much of the radioactivity from the explosions there out to sea diluted a large amount of the exposure to humans and terrestrial life. No such protection exists on river-based nuclear plants like the Columbia Nuclear Plant. A Fukushima-style accident there would be born by the wind over land and water-related impacts would be felt by downstream river uses for centuries.

In summary, in the case of the Columbia Nuclear Plant there are potential pathways for the same type of catastrophic containment breaching accidents that occurred in Japan in 2011. These pathways are more likely than the NRC and the reactor operator have been willing to officially acknowledge to date. The plan to place unfiltered vents on the Columbia Nuclear Plant's containment system constitutes a basic violation of NRC requirements for viable containment in order to safely operate a nuclear power plant. For this reason[,] the Columbia Nuclear Plant and all other plants with the same or similar containment systems should be closed immediately until they can be shown to have containment systems that do not violate NRC requirements. Thank you.

MR. GUNTER: Thank you, Chuck.

Mary Lampert? And we are 2:15, so we have

until 3:00. Okay.

MS. LAMPERT: Okay. Hi, this is Mary Lampert, Pilgrim Watch, keeping an eye on the Pilgrim Nuclear Power Plant.

We strongly object to the preliminary statements that we are in no immediate danger. That is on its face an absurd statement.

We know NRC does not have a crystal ball and we can look at the facts brought forward by Tim Judson and the petition I'm a part of that the economic situation of boiling water reactors in deregulated markets is such they cannot --

(Technical interruption.)

MS. LAMPERT: Hello?

MR. GUNTER: Go ahead, Mary.

MS. LAMPERT: They cannot compete with cheaper available sources of electricity. And why this presents a particular danger is this: That they're old reactors. Pilgrim went online, for example, in '72. And like old people, they're starting to fall apart. They need replacements that Pilgrim and other old reactors in deregulated markets are not spending the money on, so things are breaking. And the NRC is not doing its job of regulating nor putting in effect orders that respond to the true challenges that we know from the

lessons learned at Fukushima.

So at Pilgrim[,] they have had 17 event reports this year [From the NRC public webpage for event reports, Pilgrim had 22 event reports from January 1, 2013 to September 30, 2013. The Event Report Nos. are 48664, 48665, 48685, 48712,48736, 48739, 48743, 48766, 48801, 48909, 48923, 48997, 49013, 49053, 49061, 49064, 49187, 49189, 49196, 49201, and 49296]. If you look at the 100 reactors across the country, on average, they have less than one shutdown per reactor this year. Pilgrim has had nine times that [From the NRC public webpage for event reports, Pilgrim has had 4 scrams from January 1, 2013 to September 30, 2013. The Event Report Nos. are 48664, 48736, 48923, and 49296]. So this goes --

(Technical interruption.)

MS. LAMPERT: Hello?

MR. GUNTER: -- try and work it out.

MS. LAMPERT: Oh, okay. And so I agree with much that has been said so far, and for efficiency of time[,] I'll just add pieces here and there.

In regard to electric power, the spent fuel pools do not have a dedicated backup power system now. To say that it's going to be dealt with down the line does not provide reasonable assurance today. Furthermore, a

secondary emergency power capacity is not required in decommissioned plants and licensees are allowed to perform maintenance on emergency diesel generators when reactors are undergoing refueling outages. Those two points puts us at considerable danger for an accident with containment failure.

As far as the assumption that mitigation is adequate is also ridiculous. We can look at, for example, the capability to add water to a spent fuel pool. NRC's assumption that operators will be able to add water to the pool mitigation during an accident is certainly overly optimistic.

At Pilgrim[,] they are supposedly going to bring truck-mounted cranes or a ladder fire truck to the site on short notice; however, this arrangement has never been realistically tested. An event that initiates or co-initiates the accident; an earthquake, hurricane, ice storm, blizzard or an attack would render a truck unavailable. A radioactive release from a reactor accident could produce radiation fields that render the truck unavailable or preclude its use. And there is no provision for a radiation-resistant TV camera to guide nozzle positioning or for shielding of the truck or spray operators, and there seems to be no recognition that spraying water on exposed spent fuel could in certain

circumstances exacerbate the accident by feeding a zirc steam fire.

And you go from one to the other and realize that there is no waste confidence. And it additionally seems counterproductive to make a final decision on this petition before we've gone -- NRC has gone through the process of the waste confidence ordered by the 5th District Court.

Furthermore, we've called the game, and I can send you the analyses of the earthquake study that NRC is using to support the fact that relax, be happy, there's no problem. That study is totally bogus. It does not pass the sniff test of scientific integrity. And I will send it to be added to this petition at the end of this conference call [To date, this document has not been provided to the NRC].

Further, I note that I had added to the petition a supplement, 9/24/11 [ADAMS Accession No. ML11279A034]; however, the Petition Review Board's acceptance of this petition did not seem to acknowledge that they had read it [The supplement dated September 24, 2011, is being addressed as part of 2.206 petition dated April 23, 2011 (ADAMS Accession No. ML11104A058), under NRC Green Ticket G20110262]. And the two points brought forward definitely have bearing on containment

integrity.

First of all, I brought forward the fact that it appears that NRC is considering detonation, explosions at [Fukushima Dai-ichi] Unit 3 as a result of a detonation. In your analyses[, it] seems to assume a detonation and not consider the possibility of a deflagration which was discussed in reference to [Fukushima Dai-ichi] Unit 3 by Arnold Gundersen as mentioned in my supplement [dated September 24, 2011 (ADAMS Accession No. ML11279A034]. It's clear that containments cannot withstand a shockwave that travels faster than the speed of sound, which is the situation in a deflagration.

Furthermore, you see that the speed of sound in a relatively warm, moist climate; in other words, reactors near large bodies of water, is around 600 miles per hour. Therefore, he contended that if this is what we think it is, it would cause enormous damage to containment because they certainly, these BWRs, are in now [no] way designed to handle it.

The second point which would be consequences that I brought forward in that supplement [dated September 24, 2011 (ADAMS Accession No. ML11279A034),] and I think deserves review by this [Petition Review] Board is the fact of the control rods

being inserted from the bottom in BWRs, where in a PWR they enter from the top. What does this mean? It means in a PWR at the bottom of the core is a very thick 8 to 10-inch piece of metal that a nuclear reactor core would have to melt through. But in BWRs[,] such as Pilgrim and at Fukushima[,] the control rods come up through the bottom. And when the nuclear core lies on the bottom of a boiling water reactor like Fukushima, like Pilgrim and the rest, it's easier for a core to melt through because of those six-feet holes in the bottom of the reactor. It doesn't have to melt through first eight inches of steel.

NRC recognized this problem in that they sent and [an] email, which I attached [in the letter dated September 24, 2011 (ADAMS Accession No. ML11279A034)] -- by NRC right after the Fukushima accident to Japan. And so[,] I would join with the others that we: (1) Have insufficient mitigation. The amounts of relief are exceedingly and unnecessarily high due to the lack of backbone in four of the five Commissioners in not dealing with filters [Refer to the Commission Voting Record, dated March 19, 2013, for SECY-12-0157 (ADAMS Accession No. ML13078A012) and Staff Requirements Memorandum, dated March 19, 2013, for SECY-12-0157 (ADAMS Accession No. ML13078A017]. And this, however, is no excuse for the Commission to continue to press for filters because

we are down the road. The option voted on by the [Atomic Safety and Licensing] Board was to kick the filter can down the road, and we're there [By Memorandum and Order, dated January 11, 2012 (ADAMS Accession No. ML12011A045), the NRC Atomic Safety and Licensing Board denied Pilgrim Watch's request for a hearing on a new contention relating to the Fukushima accident]. And there can be no excuse, particularly with a dry well event[,] because there is no way in hell that that is being scrubbed and no rational person will accept that all accidents will be slow, well-behaved and the gases will slowly meander and most of the radionuclides will get stuck on the sides. That is ridiculous on its face.

And thank you for the opportunity.

MR. GUNTER: Thank you. Okay. Linda Lewison --

MS. LEWISON: Yes?

MR. GUNTER: -- with NEIS?

MS. LEWISON: Can you hear me?

MR. GUNTER: Yes. Go ahead, Linda.

MS. LEWISON: Okay. This is Linda Lewison in Chicago. I'm speaking on behalf of David Craft, director of Nuclear Energy Information Service. I am a board member.

Nuclear Energy Information Services is a

32-year-old safe energy[,] anti-nuclear[,] environmental organization based in Chicago, Illinois. We submit the following additional testimony in support of the 2.206 petition originally filed April 13th, 2011 [The petition filed on April 13, 2011 (ADAMS Accession No. ML11104A058) is being addressed under NRC Green Ticket G20110262, and the current petition filed on March 21, 2013 (ADAMS Accession No. ML13085A218) is being addressed under NRC Green Ticket G20130229], calling for the closure of GE boiling water reactors using Mark I and Mark II containments.

NEIS has monitored the activities of Illinois' nuclear reactors and federal and state regulators since 1981. Illinois is the most nuclear-reliant state in the U.S. with 11 operating and 3 closed reactors. Within our borders[,] sits 9,660 tons of spent reactor fuel, the largest standing amount of high-level radioactive waste of any state.

After observing the questionable, inconsistent and at times lackadaisical historic operation and regulation of these reactors, we are extremely concerned about the protection, safety and health of the people and environment in light of the continuing development surrounding the Fukushima nuclear disaster in Japan and NRC's sluggish, imprudent

and unwise decision making regarding implementing prudent lessons learned, corrective actions at U.S. reactors.

In light of the continuing and worsening Fukushima disaster, NRC's inadequate treatment and partial denial of issues in our previous conjoined 2.206 petition of April [13,] 2011 [See NRC letter dated December 13, 2011 (ADAMS Accession No. ML11339A077)] , and NRC's recent decision to overrule the advice of its own technical staff and further delay prudent installation of filtered hardened vents at Fukushima-type reactors in the U.S. [See Staff Requirements Memorandum, dated March 19, 2013 (ADAMS Accession No. ML13078A017) for SECY-12-0157] , we express grave concerns about the safety of continued operation of the four Mark I BWRs at Dresden and Quad Cities and the two Mark II BWRs at LaSalle Station listed in this petition and request acceptance of the contentions in this petition and closure of these reactors.

In addition to the contentions[,] we raised in the 2.2[06] petition of April 13th, 2011 and additional comments of May 2nd, 2013, both of which we attach at the end of this submittal for reference [to date these documents have not been provided to the NRC], we

submit several new contentions for consideration as the additional basis for our request.

The high-level radioactive waste inventory. A report prepared for the Department of Energy in 2011 estimates that there exists 1,531 metric tons of heavy metal, 9,029 assemblies of spent reactor fuel at the Dresden Plant; 1,481 MTHM, that's 8,285 assemblies at Quad Cities; and 1,237 metric tons of heavy metal, 6,885 assemblies, at the two LaSalle reactors. This gives a total of 4,250 metric tons of heavy metal and 24,199 assemblies stored five stories above ground at the six Mark I and Mark II reactors in Illinois.

This accumulation of spent fuel at these seven Illinois reactors is roughly nine times the total accumulation of spent fuel at Fukushima Daiichi Units 1 to 4 reactors combined. Not only is this amount far greater than that at Fukushima, but all of the Illinois reactors continue to add new spent fuel pool to their pools, increasing the heat load to each of the pools. All the reactors at Fukushima add no new inventory, and therefore heat load to their pools. Thus[,] the potential risk grows at the Illinois reactors while we await NRC directives to Exelon to implement all of the recommended spent fuel pool improvements.

(2) Nuclear safety culture and, quote,

"the law." In our May 2nd, 2013 comments[,] we pointed out that NRC claims, quote, "a nuclear safety culture is the core values and behaviors that emphasize safety over competing goals to ensure protection of people and the environment," unquote. We quote former Region III director [Director], Charles Casto[,] in stating it also, quote, "going beyond what's required," unquote.

It was our conclusion at the time and remains so today, and as long as General Design Criteria 16 for all Mark I and Ii reactors is ignored, that the Nuclear Regulatory Commission lacks a safety culture as it is self-defined.

During the Full Committee hearing of the Senate's Energy and Natural Resources Committee to consider the Nuclear Waste Administration Act of 2013 held on July 30th, 2013, an interesting set of remarks came from two senators asking questions of Secretary of Energy Moniz. Senator Jim Risch of Idaho commented on, quote, "the state of the law." Quote, "We have a law that clearly designates where the permanent storage is. I'm troubled by the fact that we're a nation of laws, and whether we agree with the law or not, when a law is passed, that's pretty much the way it is.

"The Executive Branch is commanded to execute the laws backed by our Constitution, is commanded

to execute the laws the legislature passes. The Executive Branch is indeed commanded to obey court orders when a court orders something. What we have here is a situation where we have a law, which has identified Yucca Mountain for what it is. And whether you agree or disagree, it is the law. And yet for some reason nobody seems to care."

Tim Scott, South Carolina, stated to Secretary Moniz, "My concern is why Congress is allowing DOE to break the law of the land as we know it today? The law is very clear: Our nation's spent fuel pool and defense waste should be disposed at Yucca. Unfortunately, ignoring or failing to enforce laws that happen to be politically inconvenient is becoming a regular occurrence with the Obama administration, even with laws they've passed. I understand that some may [have] found Yucca to be politically inconvenient, but that doesn't matter. It's still the law of the land. The nuclear industry, like any other industry has needs certainly, and they need Yucca Mountain. What good are laws passed by Congress if for any reason we can decide to enforce or not enforce them? What good are laws where the mandate is pushed back causing consternation and lack of certainty?["]

"The issue as we see it is simple: Mark I

and Mark II reactors are not in compliance with GDC 16. The NRC intends to ignore GDC 16 and allow the reactors to continue to operate. The law of the land says that the reactors must be in regulatory compliance to operate. And NRC's regulatory mandate and self-proclaimed nuclear safety culture emphasize safety over competing goals to ensure protection of people and the environment.

"The public, like industry, needs certainty, certainty that the NRC will not cherry pick the regulations it will enforce, that it will fully enforce the regulations it has or lose all credibility and public confidence."

We would submit to NRC if, quote, "the law of the land is truly a legitimate and not merely convenient and cherry-picked concern of the members of Congress of NRC, it should be executed impartially on all agencies of the Executive Branch." There is no justification to single out DOE's lack of performance according to the law on Yucca Mountain while continuously allowing the NRC the power of enforcement discretion "finding a way out of the laws of the land as opposed to enforcement of the laws of the land," unquote.

The NRC is bound by the law of the land to enforce General Design Criteria 16 for all Mark I and II reactors. NRC is not following the law as Congress

intended if it does not enforce GDC 16 for all Mark I and II reactors. You do not have a nuclear safety culture at NRC if you merely follow the letter of the regulations, do check box exercises and cherry pick the regulations you enforce.

The people of Illinois tell you point blank we have, quote, "no confidence in this style and pattern of regulation and lack of a nuclear safety culture." We feel threatened by your inaction and we do not and will not accept its continuation as valid regulatory practice. If we do not see progress in NRC enforcing its regulations for Illinois reactors, we may have to seek intervention at a higher level.

Response to additional contentions of May 2013. To date, NEIS has received no response to rebuttal from NRC to the contentions introduced on May 2nd, 2013 [ADAMS Accession No. ML13144A127]. We request written rebuttal to the contentions raised. Thank you for this opportunity to speak.

MR. GUNTER: Thank you. Wally Taylor?

(No audible response.)

MR. GUNTER: Are you there, Wally?

(No audible response.)

MR. GUNTER: Gretel Johnston?

MS. JOHNSTON: Yes, thank you. Hello, my

name is Gretel Johnston.

MR. GUNTER: Go ahead, Gretel, introduce yourself.

MS. JOHNSTON: Hello.

MR. TAYLOR: -- Wally. Can you hear me?

MR. GUNTER: Okay. Let's do Wally and then Gretel.

MS. JOHNSTON: Okay.

MR. TAYLOR: I apologize. I was on mute and I --

MR. GUNTER: Yes, I just want to remind the speakers we have a little less than 20 minutes. So please be concise. Thanks.

MR. TAYLOR: Thank you. This is Wally Taylor. I'm with the Iowa Chapter of the Sierra Club and also the National Sierra Club's Nuclear Free Campaign. I'm speaking specifically about the Cooper Nuclear Station along the Missouri River, the Duane Arnold Energy Center in Iowa along the Cedar River, and the Quad Cities Generating Station along the Mississippi River.

The first point I want to make is that these reactors, like many or most of the Mark Is and Mark IIs, were put on line in the early '70s. So certainly[,] technology changes in the past almost 40 years and certainly the lessons learned hopefully are added to what

we know in the past 30 or 40 years.

So the filtered vents that we're talking about here are something that we know will work and must be added to the plants, and that this the kind knowledge that we need to keep adding to our nuclear fleet to keep them safe. Other folks have talked about the flooding issues. I want to just add a couple of points.

With respect to the Missouri River[,] there have been several studies. One was mentioned already, the Perkins et al study [See NRC "Screening Analysis Report for the Proposed Generic Issue on Flooding of Nuclear Power Plant Sites Following Upstream Dam Failures," July 2011 (ADAMS Accession No. ML113500495)]. There was another one done by David -- whose name escapes me. And I've tried to get a copy of that, but the NRC refuses to release that document. And it just seems to me that the public needs to know that information.

And the flooding incidents are what will make the filtered vents necessary. On the Missouri River, for example, there are six upstream dams from Montana down to South Dakota. The Fort Peck Dam in Montana has behind it 18.6 million acre feet of water. The Garrison Dam has 23.8 million acre feet of water behind it. And the Oahe Dam has 23.5 million acre feet. The other three dams are smaller, but you can see that's

a lot of water. And what experts have told me is that if any one or more of those dams breaks, it'll be worse than tsunami and it will impact these nuclear plants and will have the same kind of hazard that we had at Fukushima.

The Mississippi River also floods and can cause damage to nuclear plants that we need these filtered vents for. The Cedar River next to the Duane Arnold Plant flooded five years ago with an unprecedented flood. Fortunately[,] the Duane Arnold facility was not impacted, but it came extremely and perilously close. So these and other plants are subject to flooding hazards that need to be addressed. And what really distresses me about the Commission's initial response to this petition is like I've seen in other 2.206 petitions. The response is basically, well, we're working on it and sometime somehow we will get it figured out, so we don't need to do anything now. Well[,] the purpose of a 2.206 petition is to ask the Commission to take action that needs to be taken and to just say that somehow some way in the future we'll get it figured out[,] because we're working on it really doesn't answer the question and really doesn't respond to what a 2.206 petition is designed to do. This is the public's only way, absent some sort of proceeding where intervention is allowed,

to seek action from the Commission that needs to be taken. And the Commission needs to address this problem and needs to take this petition for review and to grant the relief requested. Thank you.

MR. GUNTER: Thank you, Wally. Gretel Johnston?

MS. JOHNSTON: Yes, hello. Can you hear me all right?

MR. GUNTER: Yes, Gretel. Go ahead. Proceed.

MS. JOHNSTON: Okay. Yes, my name is Gretel Johnston and I'm representing BEST/MATRR, the Bellefonte Efficiency & Sustainability Team and Mothers Against Tennessee River Radiation in the Tennessee Valley. We will be specifically addressing issues with the three GE Mark I reactors at Browns Ferry Nuclear Power Plant in North Alabama.

Given the recent resignation -- kind of as a prologue, I would like to say the recent resignation of the 26-year veteran engineer at Browns Ferry, we would like to just take a stand in support of her whistle blower protest. The discovery of tampering with root cause safety reports is extremely strong grounds for withdrawal of the Browns Ferry operating license. To doctor safety reports against the will of the trained

specialists who write them is a serious violation of the very foundation of nuclear safety, and we'd call on the NRC to act with definitive strength on this issue [Note: the NRC Allegations process is separate from the 2.206 petition process].

Browns Ferry Unit 1 has earned NRC's worst rating. And according to NRC records, the BFN reactor Units 1, 2 and 3 have the longest shutdown records of any reactors in the United States and have suffered over 270 emergency scrams [a review of the NRC event reports found 78 scrams from 1988 to present day for the Brown Ferry units], which undoubtedly add to the type 304 stainless steel vessel degradation, and the control rods cracking further weakening the integrity of the poorly designed Mark I reactor containment and safety.

We agree with Beyond Nuclear's petition that not putting filters on these unfiltered vent modifications voids the original licensing agreement[,] which requires an essentially leak-tight containment structure against the uncontrolled release of radioactivity. Without filters to remove a large percentage of radioactive emissions, any release, whether intentional or inadvertent, violates the licensing agreement for these GE reactors. While the NRC is further extending safety retrofit deadlines, our

community has three aged Browns Ferry reactors that appear to be leaking radiation into our air and young people and babies who live here are dying at a rate of 21 to 27 percent higher than average U.S. communities. [Note: The National Academy of Sciences (NAS) has started the initial planning step of the NRC-sponsored pilot study of cancer risks in populations around six nuclear power plants and a nuclear fuel cycle facility. The NRC is asking the NAS to carry out this pilot to help the NRC determine whether to extend the study to additional reactors and fuel cycle facilities.]

Infant mortality rates in the areas surrounding Browns Ferry seem to be illustrating a bathtub curve effect. The numbers of babies who died in their first year of life jumped when the Mark I reactors first came online here in the mid-1970s. Then[,] the rate declined until the late 1990s. Since then, there has been a steady increase in infant mortality to 21.6 percent above the U.S. rate in 2010. The figures are even worse for Hispanics at 40 percent. And white babies are dying at a 32.6 percent higher rate near and downwind of Browns Ferry than in average U.S. communities.

Our group of concerned citizens took radiation readings with a quality calibrated Geiger counter from 50 sites surrounding Browns Ferry in varying

weather conditions and found readings from 36 to 600 counts per minute for 40 times background radiation levels. The lowest, 1,600 counts per minute at 40 times background radiation levels. The lowest readings were recorded upwind of Browns Ferry and the highest readings were recorded downwind during rain events as far as 70 miles from Browns Ferry.

This indicates the possibility that the aging Browns Ferry reactors may be leaking radioactivity in our valley and we call on the NRC to require more thorough, frequent and transparent monitoring from reactor operators, if not from the NRC or an independent scientific group[,] up to 100 miles from the plant in seasonal prevailing downwind directions.

Our official records show that tritium levels in drinking water measured in Muscle Shoals, some 40 miles west of Browns Ferry, and in Scottsboro, some 70 miles southeast of Browns Ferry -- those readings are three to four times higher than tritium levels in drinking water in Montgomery, Alabama, which is over 100 miles from any nuclear facility. We think there is a very real possibility that large populations in North Alabama are being contaminated with Browns Ferry emissions either from corroded torus wells, leaking valves and/or inadequate filtering and we call on the NRC

to investigate.

We also want to bring attention to threats to the raised cooling pool for these reactors. We agree with the Petitioners that these cooling pools holding far more radioactivity than the reactor cores should be required to have dedicated backup power. In the southeast and increasingly in other parts of the country[,] tornados are a severe and repeated threat to these cooling pools and we think that new regulations need to be implemented to categorize tornado safety standards in a way similar to seismic threat categories.

At Browns Ferry alone[,] well over 250 million curies of radiation is stored in these pools with only sheet metal roofs overhead. The initial studies by GE for tornado safety were conducted in 1968 when it was still thought that opening windows helped reduced tornado damage, thus blowout panels were designed into the metal roofs. In April of 2011[,] the strongest tornado known to man, a category EF5, wreaked havoc about 500 meters from the pools twisting a row of power towers into pretzels and cutting power to all of North Alabama and much of Tennessee. Browns Ferry Nuclear Plant was forced to use diesel generators for seven days to keep the three reactors and cooling pools from meltdown.

We think another threat is the possibility

of a tornado sucking contaminated water from the pools and spewing it across our valley. We consider these open-topped cooling pools to be a general design criteria fault along with the lack of dedicated cooling pool backup power and the licensing of these designs to be an error.

As long as the faulty design is still allowed to operate, we call on the NRC to: (1) Require a defined and hopefully accelerated schedule for removing fuel from these cooling pools to be stored in onsite hardened dry cask storage bunkers so that only the fuel stored for the necessary five-year period as determined by NRC and the Academy of Sciences in 2005 are retained in the pools rather than the far safer hardened onsite dry cask storage containers; (2) we call on you to require reinforced overhead containment of these cooling pools; and (3) to establish regulations similar to current seismic categories and enforce substantial strengthening of overhead cooling pool containment.

At this point[,] I would like to submit for the record our recent report, "Radioactive Emissions and Health Hazards Surrounding Browns Ferry Nuclear Power Plant in Alabama," which will be both emailed and snail mailed with our comments [By email dated October 29, 2013 (ADAMS Accession No. ML13304C006), the NRC received

this report and supplemental information]. The report can be downloaded from our Web site at MATTR.org, M-A-T-T-R dot org [The correct website is www.matrr.org]. Thank you for your attention to these issues and for your service to our country and its people living near nuclear facilities.

MR. GUNTER: Thank you, Gretel.

We'll now hear from Leslie Sullivan Sachs.

MS. SACHS: Thank you. I am with the Safe and Green Campaign and the SAGE Alliance, citizens groups from the tri-state area around Vermont Yankee Nuclear Power Plant.

A month ago, Entergy announced that they would close Vermont Yankee when it ran out of fuel [In a letter dated September 23, 2013 (ADAMS Accession No. ML13273A204), Entergy notified the NRC that Vermont Yankee will cease operations in the fourth quarter of 2014]. We are pleased that Yankee is the fifth reactor closure announced in 2013, but we are very worried that Entergy will not spend what it takes to do the maintenance nor necessary upgrades to keep this reactor running safely until they pull the plug and move the spent fuel out of the fuel pool.

Entergy said that it will close Vermont Yankee because of finances. They said it had nothing to

do with politics or their legal battles, but their choice to engage in legal battles has everything to do with finances. In addition to the federal preemption lawsuits against the State of Vermont they initiated, Entergy initiated a suit at the Vermont Supreme Court. They are continuing that suit even though the [Vermont] State has said that since Yankee is closing the case is moot. Entergy sued and they're appealing a tax case.

They're still in the relicensing permit process before the [Vermont] Public Service Board. And just to show you the kind of harassment types of suits they're doing, last April they even sued the state [State of Vermont] and [in] federal court, because they said the state [State of Vermont] wasn't moving fast enough on approval of a new backup diesel generator for the waste pool even though the state [State of Vermont] publicly stated that it did not oppose the approval [Note: The NRC is not involved in these litigations between the State of Vermont and Energy].

The typical legal costs of a license extension is $2 million. According to a source in Yankee's administrative office, Entergy has spent $80 million on legal fee[s] since initiation of license extension practice. By comparison, the post-Fukushima costs at Vermont Yankee were estimated in the $40

million-plus range. So[,] Entergy is more interested in setting legal precedents and harassing the state [State of Vermont] than they are investing in post-Fukushima upgrades or on maintenance. We wonder if this litigious pattern will follow them to Pilgrim and FitzPatrick, other Entergy-owned Fukushima-style reactors.

In addition, six weeks before the closure announcement Entergy announced company-wide layoffs including 30 workers at Vermont Yankee, 75 at Indian Point, 30 at FitzPatrick and 30 at Pilgrim. For even though we're happy about closure, we are worried more than ever about public safety. The next 14 months will be a dangerous time for those of us in the evacuation zone, especially for those children in the school across the street from the reactor [Note: The NRC has two resident inspectors on-site performing inspections, and inspections are supplemented as needed by other NRC personnel].

Radiation leaks are now being reported regularly. Four times in June and July monitors registered false positive for high radiation [See NRC Event Reports Nos. 49211 and 49358]. The day before the closure announcement there was another spurious spike of supposedly false radiation readings in a radiation detector that had been replaced within the last month

according to a letter from the NRC to the state [State of Vermont].

On September 19th, a leak occurred in a key safety system, the high-pressure coolant injection system, which released a small amount of radioactivity within the reactor building [See NRC Event Report No. 49355].

On September 24th through the 25th, low oil levels were discovered due to a loose compression fitting on a ["B"] recirculation pump motor oil reservoir. The reactor was brought down to 14 percent.

So we worry. Will the workers depart a sinking ship that is sporadically leaking radiation into their workplace? Will they leave to find permanent work elsewhere? Will new workers come in who do not know the reactor well enough to stay on top of these constant problems? Will Entergy spend the money necessary to maintain the plant, or will they use reconditioned parts and the equivalent and chewing gum and duct tape to mask the problems?

And we will continue to worry after shutdown about the most dangerous part of the plant, all that spent fuel in the fuel pool, more than four times what are in the Fukushima pools. It will be left to cool down for years, perhaps decades, until it can be moved into dry

casks and abandoned on the banks of our Connecticut River [Note: The NRC Decommissioning regulations are found in Chapter I of the Title 10, "Energy," of the *Code of Federal Regulations* (CFR). 10 CFR, Part 20, Subpart E provides the main decommissioning requirements. A great deal of decommissioning information is located on the NRC public website at http://www.nrc.gov/about-nrc/regulatory/decommissioning.html]. As you know, the BWR Mark I has no protection for the fuel pool. None. A breakaway roof and blowout panels do not protection make.

This is why all 23 reactors must be shut down today. The nuclear industry is in a perilous position. I strongly recommend you read Mark Cooper's two reports: "Nuclear Safety and Nuclear Economics" and "The Impacts of Fukushima on Nuclear Economics," and his most recent report, "Renaissance in Reverse: Competition Pushes Aging U.S. Nuke Reactors to the Brink of Economic Abandonment." He lists the reactors most at risk to close because of particularly intense challenges, five of which are Mark I and Mark II reactors: Nine Mile Point No. 2, FitzPatrick, Clinton, Pilgrim, VY [Note: Vermont Yankee is scheduled to cease operations in the fourth quarter of 2014], and Oyster Creek [Note: Oyster Creek is scheduled to cease operation no later than December

31, 2019].

Economic pressures and necessary post-Fukushima safety regulations are too much for this industry to bear. They cannot perform safely. Have mercy on this industry. Shut down all the Fukushima-style reactors now. In Vermont[,] we call it death with dignity.

MR. GUNTER: Thank you, Leslie.

and our final speaker is Jeff Brown. And if we could indulge him to finish is [his] statement. Thank you.

Jeff?

MR. BROWN: Yes, my name is Jeff Brown. I'm a member of GRAMMES, Grandmothers, Mothers and More for Energy Safety. We're focused on the Oyster Creek Nuclear Generating Station in Lacey Township at the Jersey Shore [Note: Oyster Creek is scheduled to cease operation no later than December 31, 2019].

Those of us who live within the potential fallout zone of Oyster Creek do not currently have defense-in-depth against radiation releases from a possible core damage accident or a terrorist attack. As a former Northern New Jersey resident, I remember well the nauseous smell from a smoldering World Trade Center days after 9/11 when the wind shifted in our direction.

Whenever we've dealt with NRC, the possibility that a terrorist attack could actually cause a problem is always swept under the rug [Note: In response to the terrorist attacks of September 11, 2001, NRC took immediate action by advising nuclear power plants to go the highest level of security, which all licensees promptly implemented. Shortly afterward, NRC and the industry re-evaluated the physical security at the nation's nuclear power plants. In February 2002, the NRC issued Interim Compensatory Measures (ICMs) requiring all U.S. nuclear power plants to perform specific plant design studies, add additional security personnel, enhance physical protection features, improve Emergency Preparedness, and provide additional training. Further information can be found on the NRC website at http://www.nrc.gov/about-nrc/emerg-preparedness/respond-to-emerg/response-terrorism.html].

I had the opportunity along with several of my colleagues at GRAMMES to meet with Commissioner Apostolakis at the end of August [August 23, 2013] and one of the questions we asked him is how could it possibly be that the NRC would give industry two refueling outages to even begin to deal with these issues? And he said it was just we've always done this way. He would look into it. I don't think we've heard from him since [Note: The

Office of Commissioner Apostolakis provided an email response to Beyond Nuclear, dated October 4, 2013 (ADAMS Accession No. ML13296A181].

But to me[,] it's clear that the way that the NRC is currently operating is with crossed fingers. It's not going to be a problem[,] because we don't think it will be a problem, therefore, we don't really have to treat it seriously [Note: The NRC has taken the Fukushima accident very seriously and has worked diligently since the accident to learn the lessons and implement those lessons. For further information, please see the NRC public website at https://www.nrc.gov/reactors/operating/ops-experience/japan-dashboard.html]. This wishful thinking approach does not give primary commitment to health and safety for those of us in reactor communities.

It seems to me that the illustration of the Japanese response to requiring these hardened and filtered vents gives us a clue of how do we get the industry to want to do it?[.] Where is the pressure coming in Japan for putting on these vents and putting on these filters? It's because they are shut down and in order to operate they've got to get it up and running to do this with the filters, with protection.

If you would accept our petition and shut

down all these reactors, those that can't meet the grade will not reopen. Those that possibly can meet the grade for public health and safety would get an opportunity to reopen and we'd have everybody pulling oars in the same direction for a change.

Finally[,] in terms of even a kind of a thumbnail cost benefit analysis approach, we were affected by Superstorm Sandy and thus we know that $62 billion worth of damage was done to New Jersey and the New York area. New Jersey alone sought $37 billion from the Federal Government for assistance. The Jersey Shore economy, our Ocean and Monmouth Counties alone in 2012 accounted for $6 billion.

Exelon bought Oyster Creek at a bargain basement price of only $10 million. It seems quite self-apparent that even the cost benefit analysis would say close them down. Thank you.

MR. GUNTER: Thank you, Jeff. And that concludes our presentation.

CHAIRMAN DAVIS: Okay. Are we going to go to questions?

MR. GUNTER: Yes, right.

CHAIRMAN DAVIS: Okay.

MR. GUNTER: Yes, thanks.

MR. SMITH: So does any of the Board Members

or the staff supporting the Board have any questions for the Petitioners today?

MEMBER DENNIG: I don't have a question. I just have a comment. As far as public participation is concerned in this particular subject, I assume you're following and are aware of the public meetings on the [NRC] Interim Staff Guidance and the [NRC] rulemaking that's in process and that you're able to participate in that.

CHAIRMAN DAVIS: I do want to make a statement, perhaps highly unusual in these kinds of proceedings, but I think it's important to note, you know, my mother and most of my family live within about 40 miles of one of these reactors. So[,] if you don't think I take nuclear safety seriously, you're kidding yourself. But I got to tell you that, you know, I take exception to numerous presenters that say that the Agency is doing absolutely nothing or the things that we have done are worthless or laughable. The Agency is working through a lot of these issues, many of the issues that you mentioned. The seismic walk-downs, the flooding walk-downs, the beyond design basis mitigating strategies activities. They are taking actions on a lot of these things. And so[,] I think it's important for the record that I state that and say that, you know,

sometimes if you move too quickly, you get unintended consequences. So[,] I think the Agency has an obligation to move in a very judicious manner to make sure they're making the right changes that are necessary to ensure public health and safety.

So[,] I know that's unusual. I wanted to make that statement.

Okay. Should we go to the phones then?

MS. LAMPERT: Yes, I have a comment, Mary Lampert, that the NRC has effectively shut the doors to substantive public involvement. If you take the 2.206 petition process, Judge Rosenthal of the [NRC] Atomic Safety Licensing Board reported that[,] with one possible exception[,] the NRC had not granted a 2.206 petitioner[,] the substantive relief it sought[,] for at least 37 years. Judge Rosenthal concluded that where truly substantive relief is being sought there should be no room for a belief on the requester's part that the pursuit of such a course is either being encouraged by the Commission or has a fair chance of success.

As far as orders go, in reality they are not open to public challenge. The Bilotti decision established that petitioners must show the order in and of itself is harmful. I've said the order is insufficient and does not respond to lessons learned from

Fukushima as has been the case in orders --

(Telephone interference.)

As of rule change petitions, frankly none of us will live long enough. We need an analysis of substantive relief to public filings of rule change petitions. How many have been accepted in a substantive way in 37 years.[?] The public's perception is zero to none. Participation in open public meetings, there is a distinct difference between being heard and action. Being heard does not provide reasonable assurance of public health and safety.

Also[,] I would like to know how many public meetings in addition to those announced has industry had the opportunity for a one-on-one extra meetings with NRC versus how many one-on-one extra meetings the public has had.

Last, the specific danger is of NRC not enforcing regulation. GDC 16[,] as discussed today, is an example. And instead of making regulations, there has been a continual habit of late of not making regulations, but instead suggestions. Voluntary compliance. [NRC] Information notices [Notices] that do not require any action.

So[,] that's why we are most disturbed and particularly when these BWRs in deregulated markets are

on thin ice, they do not have the money to initiate the fixes that are required, and NRC has not had the staffing or will; I'm not saying which, to be Johnny-on-the-spot and assure that they do. So[,] we are in a very, very dangerous position. And I hope to God[,] it's not my reactor, but it will be one. Thank you for the opportunity.

MR. SMITH: Okay. Before we get too far into questions, I just want to remind everyone that only 2.206 process-specific questions will be addressed. And also[,] we only have like a limited amount of time that's left, so we may not be able to get to all of the questions that we may have from the public. But we ask that if you ask the questions, introduce yourself and which organization you represent if you are representing the organizations.

You guys have any feedback for the last questions that was asked?

CHAIRMAN DAVIS: I don't have anything specific to say, no.

MR. SMITH: All right. Great. Thanks. Operator, if you can cue the next question that's there then.

(No audible response.)

MR. SMITH: Okay. So[,] there's no

questions from the operator. Are there any other questions 2.206 process-specific-type questions that would like to address at this time?

MR. GUNTER: Yes, Paul Gunter, Beyond Nuclear. Are we going to get a director's decision out of this? If you proceed to dismiss this petition preview process, does it currently elevate to the level of getting a director's decision where a lot of our questions and concerns will be addressed?

MEMBER LAMB: This is John Lamb. Once the [PRB] Board makes a decision, if it's accepted, then you get a director's decision. If it's rejected, you just get a letter saying here's why it was rejected. So[,] it's only the acceptance part that you'll get a draft director's decision and then a final director's decision. That's the difference.

MR. GUNTER: This is Paul Gunter again. Does the letter that you will send us with your final determination -- what detail does it address some of the concerns and issues and questions that have been raised in this process today?

MEMBER LAMB: It will address your petition that you came in with, you know, revoking all BWRs. Basically[,] that you disagree with the Commission SRM about the vent. You want the radiation hardened vent.

That's what it will address.

CHAIRMAN DAVIS: This is Jack Davis from the [PRB] Board. I think your question goes though -- you're asking how much detail, right, would go to -- correct? You have a comment to that, John?

MEMBER LAMB: It provides, you know, a level of detail that will answer the question as much as possible.

MR. SMITH: Are there any other questions?

MR. JOHNSON: Can we make a statement?

MR. SMITH: One moment, please.

MR. KAMPS: Hello. Can I go ahead?

MR. SMITH: Go ahead.

MR. KAMPS: Yes, my name is Kevin Kamps, also with Beyond Nuclear, and I have a question about the 2.206 process. This came up at a meeting with Commissioners Magwood and Ostendorff several months ago held at NRDC's office in Washington, D.C. And Tom Cochran from the Nuclear Division at NRDC made a comment that he once had a conversation with the original NRC staff or Office of General Counsel author of the 2.206 regulations in the first place, and that person described to him, admitted to him that the entire process was designed as a black hole into which the public would enter and never come out, at least victorious, with substantive

relief, as Mary Lampert put it.

So I'm just curious if this Petition Review Board would agree with that characterization that Tom Cochran described with the original author of this regulation.

CHAIRMAN DAVIS: I mean I'm not familiar with what you're talking about and the background. I can tell you, as I said before, I will give due diligence to the petition that's before us and to ensure that we arrive at the right decision based upon all the information that we have available to us.

MR. KAMPS: I guess my follow-up question is what would explain what Mary Lampert gave as the record of the 2.206 process, perhaps one possible exception, no substantive relief granted the public in nearly four decades.

CHAIRMAN DAVIS: Yes, I mean certainly I can't comment on that. I don't know all of the cases that she was referring to. Again[,] I can tell you, as I've told John repeatedly during this process, that I want all of the concerns that are laid out in the petition to be adequately addressed. And I think that's why Paul is getting to how much detail are we getting when we say no immediate concern and then there's nothing further beyond that. We should be able to give you further

information or reference the documents that we're referring to to explain, if that were where we come out.

MR. KAMPS: Thank you.

MR. SMITH: Someone on the line had a comment. As a reminder, the comment period is over. We're looking for the 2.206 process-specific questions. If you have any questions related to the 2.206 process, you can ask those questions at this time.

MS. LAMPERT: Mary Lampert again, Pilgrim Watch. I would add also to 2.206, it is correct that you cannot appeal a decision within the NRC, is that correct? One PRB at the end of August.

MEMBER LAMB: This is John Lamb from NRC. Yes, if the petition is rejected, there is no recourse.

MS. LAMPERT: That's another problem when you think about it. Now would you like me to send the link to Judge Rosenthal's decision? [Note: To date, this link has not been provided to the NRC.]

CHAIRMAN DAVIS: Sure, Mary. That's fine. Absolutely. Any additional information like that would be helpful.

MS. LAMPERT: And who should I send it to?

MEMBER LAMB: Send it to john.lamb@nrc.gov.

MS. LAMPERT: Okay. Thank you very much.

MR. SMITH: Okay. I'd like to thank everyone for their time and attention. And this is the end of the meeting. We'd like to reintroduce Mr. Jack Davis at this time to end the meeting.

CHAIRMAN DAVIS: I think what I was saying before was actually my closing statement where I am taking this serious as the Chairman of this Board. I am listening to what you're saying and I am trying to balance what the Agency's doing and what you're asking for.

And as you know from the May [May 2, 2013] meeting, I asked the question of whether you felt that it was inadequate what the Agency was doing or whether the Agency was on a time scale that you felt was not appropriate. Because I've heard many of your discussions today talking about how long it's taking the Agency to get to that location with EA 109, with the other beyond design basis mitigating measures that I'm currently heading up. We are on a path to making significant amounts of improvements to beyond design basis measures for very extreme natural phenomena. That's an important point to keep in mind. And so[,] we are on a path.

You know, whether you believe that path is not past [fast] enough, I hear different things from different folks as they were presenting. Some were

saying, well, I don't think it's happening fast enough and others are saying it's not good enough. So that's what I need to kind of sift through and understand, you know, where the real issue lies with the petition.

MS. LAMPERT: I think what we're saying -- I know Pilgrim Watch is saying, because I have multiple 2.206s before you, it's not either or, it's both, that 2016 -- giving all that time to licensees is not acceptable because then we have no reasonable assurance today or for the next four or five years, number one. And what is being done is insufficient.

CHAIRMAN DAVIS: Appreciate that clarification. Thank you.

MR. JOHNSON: Another thing I would note is that the Japanese authorities obviously have been shown to be inadequate in enforcing the pre-Fukushima requirements of the plant there, but post-Fukushima[,] I think they've shown a better understanding of the seriousness of that accident in deciding that rather than have plants continue to operate while they figure out what is a safe operating standard that they would close plants and then determine when it would be safe to reopen them. And I think that perhaps the NRC and what saying with this petition is that these particular plants which have proven to be insufficiently safe should be shut

until they can be shown to be safe.

CHAIRMAN DAVIS: Thank you for the additional comment. Appreciate it.

Are there any others? If someone wants to say something, I'm fine with continuing.

(No audible response.)

CHAIRMAN DAVIS: Okay. With that then, do we have the court reporter? Yes. And do we need any additional information from anyone?

(No audible response.)

CHAIRMAN DAVIS: To the court reporter, do we need anything else?

COURT REPORTER: Who was the last commenter?

MR. JOHNSON: It was Chuck Johnson from Oregon and Washington PRS in Portland, Oregon.

COURT REPORTER: Thank you. That's it.

MR. JOHNSON: Thank you.

CHAIRMAN DAVIS: Okay. Thanks. And then I guess with that we will adjourn the meeting.

(Whereupon, the hearing [meeting] in the above-entitled matter was concluded at 3:15 p.m.)