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Re: Public Comments to Petition Review Board (PRB) of Paul Gunter §2.206 Petition filed 03/21/2013 Requesting Agency Revocation of Operating Licenses for General Electric Mark I and Mark II Boiling Water Reactors. (Petition: <http://pbadupws.nrc.gov/docs/ML1308/ML13085A218.pdf>)

Dear Sirs:

As stated in my Comments to the NRC Petition Review Board on Sept. 30, 2013, our group of concerned citizens, BEST/MATRR (Bellefonte Efficiency & Sustainability Team and Mothers Against TN River Radiation), is specifically addressing issues with the three TVA GE Mark I Reactors at Browns Ferry Nuclear Power Plant in Alabama.¹ We are extremely concerned about recent the allegations by a 26 year veteran nuclear engineer, who resigned in protest against a dangerous safety culture at Browns Ferry. According to her statements in press reports and before regional NRC representatives, TVA officials asked her to change Root-Cause Safety Reports and when she refused to do so, she alleges they were altered by management.² To change any Safety Reports, against the judgement of the trained specialists who write them, is a serious violation of the very foundation of nuclear safety, and we ask the NRC to act with definitive strength on this issue. Tampering with Root-Cause Safety Reports is strong grounds for revocation of the Browns Ferry Operating License.

Browns Ferry Unit 1 has earned NRC's worst rating,³ and according to NRC records, the BFN Reactor Units 1, 3 and 2 have the longest shutdown records of any reactors in the U.S.;⁴ and have suffered over 270 emergency SCRAMs⁵ – which undoubtedly adds to the Type 304 Stainless Steel vessel and component degradation⁶ and the control rods cracking,⁷ further weakening the integrity and safety of the poorly designed Mark I reactor system.⁸

We agree with Beyond Nuclear's Petition point that not putting filters on these post-Fukushima unfiltered vent modifications voids the original licensing agreement, which requires "an essentially leak tight containment structure against the uncontrolled release of radioactivity."⁹ Without filters to remove a large percentage of radioactive emissions, any release – whether intentional or inadvertent or whether from the reactor to the torus and then the exterior environment –violates the system safety function of preventing escape of radionuclides; and therefore, violates the licensing agreement for these General Electric reactors, as stated in NRC Regulation Design Criteria 2 and 16.¹⁰

While the NRC is further extending safety retrofit deadlines, our community has three aged Browns Ferry Mark I reactors that appear to be leaking radiation into our air, and young people and babies who live here are dying at a rate 21 to 27% higher than average U.S. communities.¹¹ Infant mortality rates in the areas surrounding Browns Ferry seem to be illustrating a bathtub curve effect. The numbers of babies who died in our area 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% above the U.S. rate in 2010.¹² The figures are even worse for Hispanic infants at 40.3% and white babies up to 1 year old are dying at a 32.6% higher rate near and downwind of Browns Ferry than in average U.S. communities.¹³

Our group of concerned citizens took radiation readings from 50 sites surrounding Browns Ferry in varying weather conditions, and found readings from 36 to 1,600 counts per minute (CPM) – which is 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.¹⁴ These readings indicate the possibility that the aging Browns Ferry Reactor units may be leaking radioactivity into our valley; and we call on the NRC to require more thorough, frequent and transparent monitoring from reactor operators (or an independent scientific group) up to 100 miles from the plant in seasonal prevailing downwind directions.

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) are 3 to 4 times higher than Tritium levels in the Drinking Water in Montgomery, AL, which is over 100 miles from any nuclear facility.¹⁵ We think there is a very real possibility that large populations in north Alabama are being contaminated with Browns Ferry emissions as a result of the aging plant, either from corroded Torus welds,¹⁶ leaking valves,¹⁷ and/or inadequate filtering; and we call on the NRC to investigate for the health and safety of the public.

We also bring attention to threats to these' reactors raised cooling pools. We agree with the Petitioners that these cooling pools, holding far more radioactivity than the reactor cores, should be required to have dedicated back-up power to keep the water from boiling off and the fuel rods from catching fire whenever off-site power sources are lost.

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 1968,¹⁸ when it was still thought that opening windows helped reduce tornado damage and blow-out panels were designed into the metal roof. In April of 2011, the strongest tornado known to man, a Category EF-5, wrecked 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 had to use diesel generators for seven days to keep the three reactors and cooling pools from meltdown, and those generators had a 37.5% failure rate in the first 2 days.¹⁹

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 this design to be an error. Whether from terrorism or natural disaster, these cooling pools are vulnerable to overhead threats. We join this petition calling for the revocation of operating licenses for these dangerous Mark I and Mark II reactors, but as long as the NRC allows the faulty designs to operate, we call on NRC to implement the following safeguards:

1. Require a defined (and hopefully accelerated) schedule for removing fuel from these cooling pools to be stored in on-site hardened dry cask storage bunkers, so that only the fuel stored for the necessary five year period (as determined by the NRC and the Academy of Sciences in 2005)²⁰ are retained in the pools, and the bulk of irradiated fuel will be stored in far safer, hardened on-site dry cask storage containers.
2. Require reinforced overhead containment of these GE Mark I cooling pools, as well as dedicated backup power.
3. Establish modernized tornado category regulations, similar to current seismic regulations.

We enclose for your review and submit for the record our recent report, *Radioactive Emissions and Health Hazards Surrounding Browns Ferry Nuclear Power Plant in Alabama*.

Thank you for your attention to these issues, and for your service to our country and its people who find themselves living near nuclear facilities. That number has now grown to one in three Americans, so your work to ensure our safety is badly needed and deeply appreciated.

Sincerely,

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Bellefonte Efficiency & Sustainability Team (BEST)
Mothers Against Tennessee River Radiation (MATRR)

Encl: [AL_BFN_Report_2013-final-dig2.pdf](#)

CC: [Paul Gunter](#)

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- ⁶ NRC Commission, ORNL prepared by K.H. Luk, *Boiling-Water Reactor Internals Aging Degradation Study, Phase I*, NUREG/CR-5754, ORNL/TM-11876, Sept. 1993, pgs. 19-20, Section 3.2. <http://pbadupws.nrc.gov/docs/ML0403/ML040300570.pdf>
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- ¹² Joseph Mangano, *ibid*, pg. 28, Table 13.
- ¹³ Joseph Mangano, *ibid*, pg. 29, Table 14.
- ¹⁴ Joseph Mangano, *ibid*, pgs. 21, 22 and Appendix 5 pg. 51.
- ¹⁵ Joseph Mangano, *ibid*, pg 20.
- ¹⁶ NRC, "Notice of Violation (Browns Ferry Nuclear Plant Unit 1 Recovery - NRC Inspection Report No. 05000259/2004011), EA-04-063, May 12, 2004. Ref. BF1 Long-Term Torus Integrity Program. <http://www.nrc.gov/reading-rm/doc-collections/enforcement/actions/reactors/ea04063.html>

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