Bellefonte Efficiency & Sustainability Team

B.E.S.T.

A local chapter of Blue Ridge Environmental Defense League · www.bredl.org

Comments to the Blue Ribbon Commission on Nuclear Waste - Submitted on October 17, 2011 by Gretel Johnston, founder, Mothers Against TN River Radiation (MATRR)

Thank you for this opportunity to voice our concerns. MATRR suggests the following:

1. The first order of business is to secure the most vulnerable high level radionuclides. There are 32 Boiling Water Reactors in the US with raised 'spent' fuel cooling pools, like the Fukushima reactors. Unlike Japan, however, the US pools have reportedly far exceeded their original capacity, and are far more radioactive than the reactor cores. Unlike the reactors themselves, however, the fuel cooling pools have no adequate containment structures around them. In fact, many have no overhead containment at all, but are open-aired with only low-cost warehouse style sheet-metal roofs above them. We watched these roofs blow off of the buildings at Fukushima. Less than 2 months later, on April 27, 2011, we came very close to seeing the roofs blown off of three buildings (with the same Fukushima GE Mark I design) at Browns Ferry in Alabama. One of the strongest tornados in recorded history, up to 318 miles per hour, swept its funnel within a mile of over 3 million pounds of so-called 'spent' fuel in raised cooling pools with only sheet-metal roofs protecting us (see our Nuclear Tornado Dangers map, page 3). Although the TVA and NRC would like us to think that the 'spent' fuel rods were protected by the water over them, neither agency has adequately answered questions about how toxic the water in the fuel pools actually is, and how they would keep a tornado from ripping that roof open and sucking the radioactive water from the pools, then spewing it across the Tennessee Valley. And of course the removed water would render the cooling pools vulnerable to fire and explosion, since power was cut and adequate backup power was not there for the cooling pools - only the reactors. Nearly a million people were put at risk by that very near miss last spring.

Here are the most critical actions that MATRR deems necessary:

- A. All 'spent' fuel assemblies that have been in cooling pools for over 5 years should be immediately moved into dry-storage casks, as recommended by the National Academy of Sciences in 2005. This at least will make them less vulnerable to tornados and terrorist attacks.

- B. Truthfully adequate containment structures (as strong as the containments for the reactors) should be built around these pools as soon as possible. No funds for further development of nuclear power should be allowed to be spent by any utility company until they have adequately secured the safety of American citizens by building safe containment structures around 'spent' fuel cooling pools.

- C. Dry-storage casks for high-level radioactivity should be guarded by our nation's Department of Defense, and paid for by the nuclear industry itself. If you believe what our FBI director testified before the Congressional Select Committee on Intelligence in 2005, that "Nuclear

power invites terrorism," then it stands to reason that these highly dangerous targets should be guarded by U.S. Department of Defense Police (and possibly our missile defense system), and we firmly recommend that this protection be paid for by the industry that has created the danger to American people and has profited from it.

2. The second order of business should be vitrification of all plutonium waste. Once it is vitrified, this most toxic of all wastes should also be guarded by our National Defense System and not by private or semi-private utility companies, and paid for by the nuclear power industry, and not by the American taxpayer.

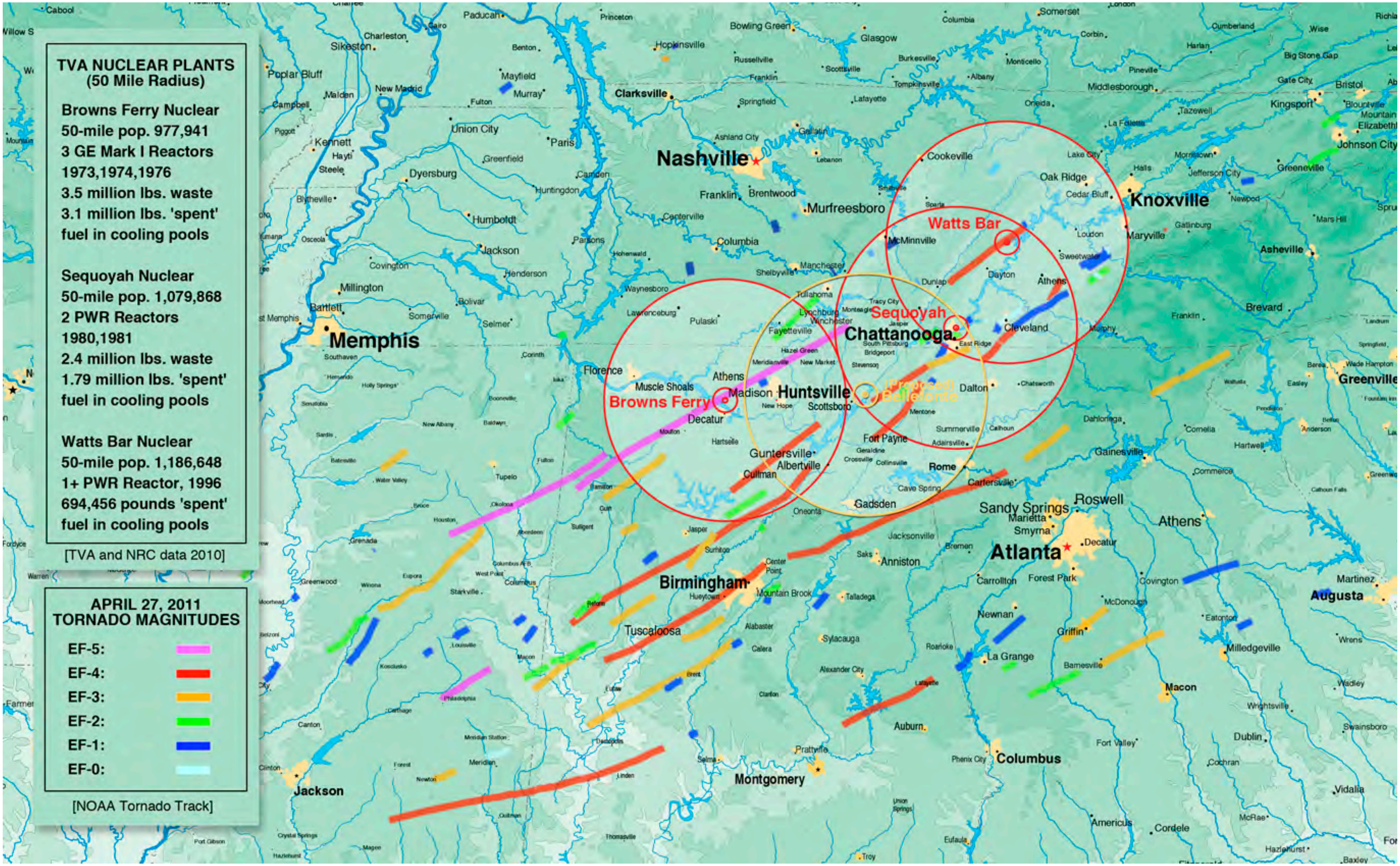
3. The definition of insanity, according to Albert Einstein, is to continue "doing the same thing over and over again and expecting different results". To continue developing nuclear energy, without having the ability to neutralize or even contain its most toxic and prolific wastes, would fall into this category of insanity. Future generations will be left with endless recurring bills for securing these wastes to prevent further mutations and diseases - especially childhood leukemias. Even dry-casks are only adequately contained for 60 to 100 years. These radionuclide wastes remain severely toxic for at least 30,000 years. History will be unkind to your decisions, if you fail to grasp the gravity of continuing this financially, environmentally and humanly indefensible course. Therefore, no development of nuclear power should be allowed in the United States of America until means for securing and neutralizing the toxicity of existing radionuclides for future generations is discovered and fully implemented.

4. The United States needs a Department of Energy and Nuclear Regulatory Commissioners who are not influenced by lobbyists putting industry profits above the safety and economic security of the American public. Misrepresentations are driving the pursuit of nuclear power in our country, and a large amount of the subsidized investments are going to the 90% French-government-owned Areva. In our day and age, there is no excuse for continuing the pursuit of expensive, dangerous and polluting energy sources, and nuclear power is clearly an industry that would die without taxpayer subsidies. It is high time for a non-polluting Department of Energy to take the helm and steer us towards a viable energy future. Renewable energy has now surpassed nuclear in providing U.S. electricity, and renewable technologies should be receiving all of the development funds for energy in our country. At half the cost of nuclear, Energy Efficiency Programs alone could create 90 times more jobs than nuclear and eliminate the need for more electric power for decades. DOE research has helped develop Solar PVs and Wind Power. Now is the time for our DOE to focus on Geothermal, on Solar CHP (Heat to Electricity), on Waste Heat CHP, on upgrading our existing U.S. Hydroelectric Plants, and on other high-efficiency means of producing electricity while creating no polluting waste.

Thank you for your service and your careful consideration of our concerns.

Sincerely,

Gretel Johnston
Mothers Against Tennessee River Radiation
MATTR.org – Because It Matters


TVA NUCLEAR PLANTS
(50 Mile Radius)
Browns Ferry Nuclear
50-mile pop. 977,941
3 GE Mark I Reactors
1973,1974,1976
3.5 million lbs. waste
3.1 million lbs. 'spent'
fuel in cooling pools
Sequoyah Nuclear
50-mile pop. 1,079,868
2 PWR Reactors
1980,1981
2.4 million lbs. waste
1.79 million lbs. 'spent'
fuel in cooling pools
Watts Bar Nuclear
50-mile pop. 1,186,648
1+ PWR Reactor, 1996
694,456 pounds 'spent'
fuel in cooling pools
[TVA and NRC data 2010]
APRIL 27, 2011
TORNADO MAGNITUDES
EF-5:
EF-4:
EF-3:
EF-2:
EF-1:
EF-0:
[NOAA Tornado Track]
Browns Ferry
Watts Bar
Sequoyah
(Proposed) Bellefonte
Nashville
Memphis
Knoxville
Chattanooga
Huntsville
Birmingham
Atlanta
Montgomery
Jackson
Tuscaloosa
Columbus
Augusta
Macon
Athens
Florence
Muscle Shoals
Decatur
Madison
Scottsboro
Murfreesboro
Clarksville
Asheville
Greenville
Rome
Gadsden
Cleveland
Dalton

References for further study:

The Union of Concerned Scientists discusses Spent Fuel Pool Vulnerabilities as follows:

"The spent fuel pools are located only within the secondary containment of the reactor—the reactor building—and not within the more robust primary containment that is designed to keep radiation released from the reactor vessel during an emergency event from escaping into the environment. Thus, any radiation released from a spent fuel pool is more likely to reach the outside environment than is radiation released from the reactor core. Moreover, because it is outside the primary containment, the spent fuel pool is more vulnerable than the reactor core to terrorist attack.

"Continuing to add spent fuel to these pools compounds this problem by increasing the amount of radioactive material that could be released into the environment. A large radiation release from a spent fuel pool could result in thousands of cancer deaths and hundreds of billions of dollars in decontamination costs and economic damage. The amount of land contaminated by a release from a spent fuel pool could be significantly greater than that contaminated by the Chernobyl disaster.

"Like the cooling system for the reactor core, the cooling system for the spent fuel pools is powered by the electric grid. However, the reactor core cooling system has two back-up power supplies—diesel generators and either a four- or eight-hour DC battery—whereas the spent fuel pool system typically has none. More generally, the industry and the NRC have given little thought to spent fuel pool accidents, and there is virtually no operator training for handling such accidents." UCS also makes recommendations for storage of 'spent' fuel, and their recommendations on nuclear power safety and security.

For a good short article explaining the dangers of spent fuel pools in America, read "US Stores Spent Nuclear Fuel Rods at 4 Times Pool Capacity" by Rady Ananda, ThePeoplesVoice.org, March 26, 2011.

For an excellent interview with renowned expert Bob Alvaraz of the Institute of Policy Studies see "US Spent Nuclear Fuel Largest Concentration of Radioactivity on Planet" by Daphne Wysham at The Real News. Alvarez explains how Congress has cut funds for the NRC and forced an NRC dependency on the industry self-regulating itself.

For an MSNBC interactive map of populations living near nuclear power plants, go to http://www.msnbc.msn.com/id/42555888/ns/us_news-life/

For reading about the toxicity of nuclear waste:
Renowned expert, Dr. Helen Caldicott of Physicians for Social Responsibility, reminds us that 100 tons of radioactive uranium pellets are placed in the core of each 1000 megawatt (MW) nuclear reactor for its operation, producing steam to drive turbines for electricity. The amount of long–life radioactive material in a 1000 mega watt nuclear power plant reactor is equivalent to the explosion of 1000 Hiroshima sized bombs. (Nuclear Power Is Not The Answer by Dr. Helen Caldicott, New Press, New York, 2006, pg 53-54)

Radioactive ‘spent’ fuel (high-level nuclear waste) is dangerous and remains radioactive for thousands of years. Nuclear reactors create plutonium, the most toxic substance known to man, during their operating cycle. Plutonium has a half-life of 24,000 years, which means it is toxic to humans for hundreds of thousands of years. So called ‘spent’ fuel is more radioactive, not less, after having used only 1% of its energy to boil water for nuclear reactors for 18 months, in the process enriching its toxicity. Then we are left with that 99% highly radioactive waste energy which must be constantly cooled in electricity-driven circulating cooling pools for 5 years before it can be moved to dry-cask storage for 60 to 100 years of its over 30,000 year actively-toxic-to-humans waste life.

According to our U.S. Director of the FBI, Robert Mueller (September 4, 2001-Present), nuclear power plants are "target rich and vulnerable." Testifying before the Senate Select Committee on Intelligence in February of 2005, FBI Director Mueller said, “Nuclear power invites terrorism.”

To fully comprehend that the Nuclear Regulatory Commission is not doing their job of protecting American citizens, we recommend that you read an article titled, "New Reactor in Tennessee: Safety Concerns Cloud US Nuclear Renaissance" (by Ullrich Fichtner, Der Spiegel Magazine, July 21, 2011) in which George Mulley, a retired OIG Inspector of the NRC for 26 years “who won the agency's top awards and reviewed nearly every major investigation the office conducted before he retired as the chief investigator three years ago" is interviewed. According to Mulley, our nuclear power plants are, "Time bombs . . . We are sitting on a bunch of ticking time bombs."

To further understand the security dangers, we recommend reading the following:

"Whistleblowers Say Nuclear Regulatory Commission Watchdog Is Losing Its Bite," by John Sullivan and Cameron Hickey, *ProPublica*, July 27, 2011.

Also see the two-part *CBS News* investigation with interviews of TVA whistleblowers on the upper right margin of this page.

And read our article, "Poor Engineering, Design Flaws, and Slack Oversight at TVA Nuclear Facilities".

According to a Chattanooga Times Free Press March 2010 article, "Nuclear Waste Piling Up in Region", "Three nuclear power plants along the Tennessee River near Chattanooga are storing 3,013 metric tons of highly radioactive nuclear waste." Sara Barczak, program director for high risk energy choices at the Southern Alliance for Clean Energy (SACE), is quoted as saying, "These were sites that were evaluated in the 1970s and 1980s to be homes for nuclear power plants for about 40 years. They were never intended to store what is basically the most toxic waste known to man."

To understand how US taxpayer subsidies have been keeping the nuclear power industry afloat, read the Union of Concerned Scientists 2011 study, Nuclear Power: The Gift That Keeps On Taking.

To understand why you may have been led to believe that there is such a thing as safe or clean or affordable nuclear power, read the American University Investigative Reporting Workshop results, where they followed the nuclear power industry money and its influence on the American public, Congress, and Senatorial and Congressional candidates.

To understand the potential and advantages to using Energy Efficiency as the first fuel for our economy, read the following articles:

Marilyn A. Brown and Benjamin K. Sovacool, "A Source of Energy Hiding in Plain Site", YaleGlobal Online, Feb. 18, 2009, http://yaleglobal.yale.edu/content/source-energy-hiding-plain-sight

Georgia Tech Newsroom, April 12, 2010, Atlanta, GA, http://www.gatech.edu/newsroom/release.html?nid=55336

Marilyn A. Brown, Etan Gumerman, Oiaojing Sun, Youngsun Baek, Joy Wang, Rodrigo Cortes, and Diran Soumonni, "Energy Efficiency in the South," (Southeast Energy Efficiency Alliance, Atlanta, GA, April 12, 2010.), http://www.seealliance.org/se_efficiency_study/full_report_efficiency_in_the_south.pdf

Energy Savvy and Efficiency First, "A Ticking Atomic Clock: Nuclear Power vs. Efficient Homes," http://www.energysavvy.com/blog/2011/07/13/ticking-atomic-clock-nuclear-power-vs-efficient-homes/

To understand the ascendance of Renewable Energy:
According to Ken Bossong of the DC based Sun Day Campaign, mid-year in 2011, renewable resources reached a milestone, providing 12.25% of domestic energy production, surpassing nuclear by 18%, and closing in on oil. “Renewable electricity expands by 26%; provides 14% of net U.S. electricity, while nuclear drops by 4% and coal by 5%.” Date derived from the U.S. Energy Information Administration released in its "Monthly Energy Review" on September 28, 2011. It can be found at: http://www.eia.gov/totalenergy/data/monthly. The relevant charts from which the data above are extrapolated are Tables 1.1, 1.2, and 10.1.

According to Green Conduct, a Brookings Institute study released July 13, 2011, Sizing the Clean Economy: A National and Regional Green Jobs Assessment, reports there are 2.7 million clean economy jobs in the United States, and that "median wages in the clean economy are 13 percent higher than the median national wage, despite the fact that 45 percent of clean economy workers have a high school degree or less (compared to 37 percent in the national economy)."

Here is a helpful resource for understanding the regional spread of the green economy:
Interactive National Map: Sizing the Clean Economy