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To: [Philpott, Stephen](#)
Subject: Comments for Aug 8 2012 NRC MOX fuel meeting
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To: Mr. Stephen Philpott, NRC, Washington, DC

Comments to the August 8, 2012 NRC Meeting Concerning MOX Fuel and the Use of MOX Fuel in TVA Brown's Ferry Reactors

My name is Stewart Horn. I live approximately 30 miles down-wind of Brown's Ferry Nuclear Plant in north Alabama. I am a retired aero-optical scientist. I was extremely upset to learn that the NRC and the Tennessee Valley Authority (TVA) are planning to put MOX fuel into all three reactors at Brown's Ferry, and to ship the fuel through many communities between the MOX fuel plant in Georgia and Brown's Ferry in north Alabama.

I believe the NRC and TVA have been talked into this by the DOE and the French consultant AREVA, who not only has a large consulting contract with TVA, but who has a very large vested interest in the MOX fuel program and in convincing TVA to experiment with MOX fuel.

There are many excellent reasons why the NRC should not permit TVA do use this fuel some of which follow:

1. The three reactors at Brown's Ferry have all had very poor operational track records since they started operations. A former TVA nuclear scientist reported that Unit 1 had the poorest performance record of all the reactors in the United States including a horrible fire where the operators totally lost control of the reactor. As a result of the fire, in 1980 the NRC created fire regulations for all reactors in the USA, and now 32 years later Brown's Ferry is still not in compliance with these regulations. That the NRC and the TVA have allowed this to happen is beyond belief. All three reactors at Brown's Ferry have a long history of many automatic shutdowns that have prematurely weakened the poorly designed containment structures due to the thermal shocks and stresses caused by the much more rapid cooling than occurs in normal shutdowns, and now these reactors have been permitted to operate an additional 20 years beyond the lifetime for which they were designed .
2. MOX fuel has never been used before in a Boiling Water Reactor (BMW). This will make using it at Brown's Ferry an experiment. It is hard to believe that the NRC would allow TVA (or any other public utility) to experiment in any commercial reactor where even a minor accident could bring great harm to many of their customers. Experiments in nuclear reactors should be conducted far from any population centers and not in commercial operating nuclear power plants. Experiments that could negatively affect customers and their communities should not be allowed in commercial reactors.
3. Scientists have estimated that a reactor accident in a MOX plant could cause up to 50% more injuries and deaths than an accident in a typical uranium fuel based plant. Not only is this increased risk unacceptable to myself and local residents, it would instantly make this plant more of a prime target for terrorists than all of the regular commercial reactors in the country because of the increased potential harm to the populace and the place. This alone is reason enough to not conduct this experiment which would put all downwind residents in North Alabama and Tennessee at increased risk of losing everything including their health.
4. Three of the Mark I reactors at Fukushima exploded when hydrogen built up in the secondary containment structures and blew the reactors apart. The secondary containment was insufficient in both size and strength. The controversial "hardened vent" modification added to all Mark I reactors after their construction apparently all failed at Fukushima allowing the pressure to rise and blow up the reactors containment structures and their spent fuel pools. If this should happen at Brown's Ferry, the consequences to us local residents

would be catastrophic. In addition, all of these vents are unfiltered and thus if they did work in an overpressure situation, the radiation would be released to the air with disastrous results for all of us down-wind.

5. Duke Energy has already experimented with MOX fuel in one of their commercial reactors. They installed plutonium rods that were supposed to go through 3 fuel cycles. After only two fuel cycles, the outer cladding expanded by more than ½ inch indicating that the protective outer shell was coming apart inside the reactor. Duke Energy put their reactor and all the local residents at risk by conducting this experiment. The NRC was highly negligent in permitting this kind of experiment, and should not allow this to be done at the aging Brown's Ferry reactors that have now wrongly been allowed to operate 50% longer than their design-to-lifetime.

6. Since Fukushima, it's widely known that these reactors have a very dangerous spent fuel pool design that resides above the reactor. It is especially dangerous if it loses either primary power or water. These fuel pools have been allowed to be condensed beyond their "designed-to-density" to allow for the storage of more fuel than they were designed to hold. At Brown's Ferry these pools have only a metal roof above them that is not tornado safe. These reactors reside in a very dangerous Tornado Alley. In the vastly destructive tornados that came through the Tennessee Valley in 2010, an EF-5 tornado passed within 5 miles of Brown's Ferry, demolishing everything in it's long continuous path on the ground and causing massive destruction all around the plant. If the tornado had hit the reactors there could have been horrible consequences for all of us living down-wind.

In summary, I am convinced that utilizing MOX fuel in any commercial power generating nuclear reactor is a horrible idea, and that the NRC will be highly negligent if this is allowed and permitted. This is especially true in the aging, already dangerous, poorly designed Brown's Ferry reactors. Two groups I support and belong to, the Bellafonte Efficiency and Sustainability Team (BEST) and the Blue Ridge Environmental Defense League (BREDL) are asking TVA and NRC to permanently shut down all three reactors at Brown's Ferry as are other residents of the Tennessee Valley. I am also concerned that MOX fuel shipments will be traveling on America's highways through many communities and passing very close to my house and land. An accident could release deadly plutonium into neighborhoods or over lands and contaminate the people present and the lands permanently. Many of my friends are also concerned and feel as I do.

Below are questions I would like for the NRC to answer in writing if possible.

A. What are the known facts about what happened to the spent fuel pools of the three reactors at Fukushima that exploded, especially the one containing MOX fuel?

B. If an over-pressure situation occurs at Brown's Ferry and the hardened vent doesn't work what are the potential consequences to the people living down-wind?

C. If an over-pressure situation occurs at Brown's Ferry and the hardened vent does work, what are the potential consequences to the people living down-wind?

Sincerely,

Stewart Horn