

## Letters to the Editor and Guest Editorials of 2012.

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18 November, 2012

Guest Column

By Clinton R. Wolfe, Ph.D.

*The Augusta Chronicle*

Augusta GA

Trashing the Element from Hell," an article in the July edition of *Scientific American*, alludes to "experts" who are recommending alternate approaches to mixed oxide for the disposition of weapons-grade plutonium.

The article does not explain why the United States is engaging in the MOX fuel program and why we are making this trip, and where we have been on this journey. These are important aspects of the issue.

After the dissolution of the Soviet Union, the Clinton administration made treaty obligations with the Russians in 1993 to convert weapons of mass destruction into energy for peaceful purposes - an initiative dubbed "Megatons to Megawatts." As a result of that initiative, high-enriched uranium, which had been in Soviet weapons targeting the United States and our allies, was sold to the United States and blended down to make low-enriched uranium for fuel for U.S. nuclear reactors.

**FULLY 50 PERCENT** of our nuclear-generated electricity in recent years, or 10 percent of our total electricity generation in the United States, derives from former Soviet weapons. Negotiations between the United States and Russia as to the fate of plutonium-based weapons material resulted in 2000 in a plutonium management and disposition agreement, in which each country committed to dispose of 34 metric tons of plutonium.

The Russians were aware that many approaches that might environmentally immobilize the plutonium in some relatively intractable matrix, such as a ceramic puck, still left the plutonium in a form that could be processed and recovered for use in weapons if we ever changed our minds. All options for disposition of plutonium were multibillion-dollar projects, and in the end all options but one led to very expensive nonproliferation safeguards and security measures *ad infinitum*.

That one option was MOX. Exposure of the plutonium in a nuclear reactor fuel cycle changes the nature of the plutonium in such a way as to render it unattractive for use in a nuclear weapon.

In addition to the obvious benefit of reducing the attractiveness of the plutonium for weapons, thereby reducing concerns over proliferation and many of the costs associated with safeguards and accountability, MOX provides additional benefits. Thirty-four metric tons of plutonium can provide electricity for a million homes for 50 years, a product worth tens of billions of dollars.

**NO OTHER OPTION** has any cost recovery component, so MOX embodies the benefits of disposing of the weapons threat, creating clean electricity for 50 million homes, recovering at least partial cost of the program, eliminating the permanent costs of safeguarding the material, and representing an accomplishment achieved by two nations who were near nuclear war - allowing them to step back from the brink of unthinkable destruction and to instead use those instruments of war for peaceful purposes.

We made the right choice. We are more than halfway to completion of the MOX facility, and changing course would be much more expensive than staying the course. We need to demonstrate our commitment to our treaty obligations and bask in the comfort of knowing that mankind can make decisions of this importance and actually pull them off.

You see, the only things from hell are the uses that man chooses for the elements.

*Produced by Citizens for Nuclear Technology Awareness.*

(The writer is executive director of Citizens for Nuclear Technology Awareness in Aiken, S.C. He formerly chaired the Technical Advisory Panel to the U.S. Department of Energy's Plutonium Focus Area.)

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18 November, 2012

Guest Column  
By Clint Wolfe  
*The Aiken Standard*  
Aiken SC

Holy Cow! Here we go again. The Nuclear Regulatory Commission (NRC) has commissioned a study by the National Academy of Sciences (NAS) of cancer rates as a function of proximity to nuclear power plants. The study will address the assertion by anti-nuclear groups that nuclear power plants cause leukemia. I insist on calling them anti-nuclear groups instead of "environmental" groups because I am executive director of an environmental group (Citizens for Nuclear Technology Awareness) and we are pro-nuclear.

I have a great deal of respect for the NRC and for the NAS and I am confident that no correlation exists between proximity to nuclear power plants and incidence of disease due to low-level ionizing radiation. The problem is that epidemiological studies cannot rule out factors that may be much more important than the subject of the study and the results often have a margin of error that renders most of the data statistically insignificant. When this happens, people interpret the data to suit their own purposes.

The premise is that low-level ionizing radiation emitted from nuclear power plants causes cancer. Now, consider that coal-fired power plants emit many times more radiation than do nuclear power plants, so why don't we do that study? Just so you know where I'm coming from, that study wouldn't be statistically significant either.

The average person receives background radiation doses of about 300 millirem (mr) per year, exclusive of medical procedures that on average add another 300 mr or about 600 mr per year per person. An mr is a measure of radiation. Background radiation dose varies by location in the U.S. and even more so in the rest of the world with some places in India and Iran that have background radiation levels of several thousand mr annually with no known health effects.

The American Nuclear Society estimates that living within 50 miles of a nuclear power plant adds about 0.01 mr to a person's total annual background radiation dose - about the same as eating one banana. About 40 mr of our annual dose comes from our own bodies. Yes, we are radioactive - every living thing is radioactive and always has been. This means that if a normal person gains 10 percent of his or her body weight, he or she will increase their background radiation exposure by 4 mr, or 400 times the amount of exposure realized by living in proximity to a nuclear power plant. Now you may see what I mean when I say these studies cannot account for factors that are much more important than the subject of the study.

We can expect anti-nuclear groups to hang on to their dogma in the face of overwhelming evidence that their premise is nonsense, but it is disappointing to find the NRC and the NAS lending credence to their position by sponsoring this study with our money. Oh yes, the study will cost approximately \$2 million.

Epidemiologists are still trying to sort out the effects of the huge amounts of radiation released in the Chernobyl accident, but have found little impact on human health. A similar conclusion may be drawn from a study of the atomic bomb survivors from Hiroshima and Nagasaki, Japan in 1945. More than 85,000 persons exposed to radiation doses from 30,000 mr to 600,000 mr were studied. A control group of unexposed Japanese would have been expected to experience an 8.4 percent chance of dying from a solid tumor cancer. The exposed group experienced an 8.8 percent rate. This was judged to be barely statistically significant since most epidemiology studies have a 3-5 percent margin of error. Most of the apparent increase in cancer incidence occurred in those who received very high doses of radiation while those receiving lower doses actually had lower rates than the control group.

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A more statistically significant result was that the exposed group showed one leukemia case more per thousand people than the expected rate. These exposures were approximately 10 million times higher than what the NAS will be studying, so one can be forgiven if one is skeptical that any credible scientific conclusion will come from this study.

Clint Wolfe is the Executive Director for the Citizens for Nuclear Technology Awareness.

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29 August, 2012

Guest Column  
By Clint Wolfe  
*The Aiken Standard*  
Aiken SC

A public hearing is scheduled for September 4 on the Department of Energy's Draft Surplus Plutonium Disposition Supplemental Environmental Impact Statement. That's a mouthful that ordinarily would cause my eyes to glaze over and lead to a rapid turning to the next page.

But this one has a roadmap in it called the "preferred alternative" that is extremely important to the citizens of the Central Savannah River Area in particular and to all Americans in general.

The entire plutonium disposition program has been formulated over the past 20 years as a result of the breakup of the Soviet Union and a monumental agreement between former nuclear foes, Russia and the U.S., to demilitarize 34 metric tons of plutonium each.

That is roughly equivalent to removing 17,000 nuclear weapons from the arsenals of the two countries.

The original estimates of cost, made years ago, for various portions of the work are likely to be exceeded.

When that happens in the nation's current budget situation there will be the inevitable hue and cry that it is too expensive and that we should shelve it. But the program is too important for that kind of knee-jerk response and besides, DOE's "preferred alternative" contains a change in the original plan that saves enough money to fund potential overruns in other portions of the program so that the overall cost of getting the job done is lowered - not raised.

The original plan consisted of constructing a Pit Disassembly and Conversion Facility which would turn the plutonium from nuclear weapons into plutonium oxide to feed the Mixed Oxide Fuel Fabrication Facility which is currently under construction at the Savannah River Site.

The MOX facility will turn the plutonium from weapons of mass destruction into fuel to provide electricity.

The PDCF by itself is a \$4 billion to \$5 billion project and would not be built under DOE's "preferred alternative." Instead, a combination of existing facilities with some modifications would be used to provide the feed for the MOX project. Key among these facilities would be H-Canyon/HB line at SRS.

These facilities are the nation's only ones capable of performing chemical separations of this type on a large scale and should be preserved.

The DOE plan would not only preserve the capability in H-Area, but would give it a very important mission for several years while the nation decides whether to engage in recycling of commercial used nuclear fuel.

Plutonium-bearing materials that are not suitable for MOX feed would be disposed of as transuranic waste at the Waste Isolation Pilot Plant in New Mexico.

The downside of this alternative is that one of three major facilities to be built at the SRS in return for minding the nation's plutonium will not be realized.

The MOX facility and the waste solidification building would remain in the DOE plan but the PDCF will not. DOE will need to make some additional investments in facilities both at SRS and elsewhere in the complex to replace the function intended for the PDCF.

This approach should lower both the cost and the technical risk of the entire disposition program.

It has become a national pastime to complain about the federal government, but it deserves our support on this issue as it strives to meet treaty obligations that are arguably the most important commitments in the history of mankind while preserving national assets that may be crucial to our future energy security. The best interests of the CSRA and the nation are served by supporting DOE's "preferred alternative."

*Clint Wolfe is the executive director of Citizens for Nuclear Technology Awareness (CNTA) and formerly chaired the Technical Advisory Panel to the Department of Energy's Plutonium Focus Area.*

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10 August, 2012

Guest Article  
*The Greenville News*  
Greenville SC

As the need for nuclear power grows, we must pursue serious efforts toward converting nuclear-weapons materials into fuel for power reactors. In particular, reactors can use a mixed-oxide fuel made from plutonium to generate enormous amounts of electricity for homes and businesses. A substantial amount of excess plutonium in the U.S. stockpile is now available for this purpose.

The Tennessee Valley Authority is considering the use of the mixed-oxide fuel, known as MOX, at its Sequoyah plant near Chattanooga, Tenn., and at its Browns Ferry plant in northern Alabama. TVA's switch from conventional low-enriched uranium to MOX could occur as early as 2018-2020, timed to coincide with the start of MOX production at a facility under construction at the Savannah River Site here in South Carolina.

Now half completed, the MOX Fuel Fabrication Facility is one of the largest construction projects in the United States, with 2,200 workers at the site. This project, which is the size of eight football fields, is blazing the trail for the resumption of nuclear quality construction in the United States after a hiatus of 35 years.

The idea of using weapons plutonium to make fuel for power reactors was a key factor in an historic arms-control agreement between the United States and Russia. That pact requires the elimination of 34 metric tons of plutonium by each country, under strict non-proliferation conditions. Combined, that's enough plutonium to arm 17,000 nuclear weapons. Converting that amount of plutonium into MOX fuel, thereby rendering it unsuitable for future military use, will take about 15 years. Though the agreement with Russia calls for eliminating 34 metric tons from each country's weapon stockpile it envisions the elimination of more of the weapons material in the future.

Once TVA begins using MOX fuel, other nuclear utilities are likely to do the same. MOX is safe and nonthreatening; and the technology for its production and use is well-proven.

Developed in this country in the 1960s, MOX was produced from plutonium in spent fuel that is left over from electricity production. MOX was pursued in this country until the mid-1970s, when it was abandoned in the U.S. on grounds that its production could lead to nuclear proliferation. Other countries such as France and Great Britain did not follow the U.S. example, and have continued to recycle plutonium. MOX has been manufactured and used safely and efficiently, with no diversion of plutonium for illicit purposes. Today MOX is used in about 30 power reactors around the world, with more planned units in the licensing stage.

And that's the point. TVA's use of MOX could pave the way for a resumption of spent-fuel reprocessing in the United States. Indefinite storage of spent fuel in water pools and dry casks at nuclear plant sites around the country is senseless, considering that the material could be converted into MOX for the production of clean energy. When that happens, the amount of nuclear waste for each unit of energy will be reduced by 50 percent.

The eventual introduction of new reactor technologies such as small modular reactors and "fast reactors" offers the possibility of recovering even greater amounts of energy from the fuel, thus further reducing the waste burden in an eventual geologic repository. So the use of this fuel makes possible a number of desirable outcomes: namely, producing billions of dollars worth of clean, emission free energy; satisfying our treaty obligations with the Russians to dispose of the weapons-grade plutonium thus making the world a safer place; contributing to our quest for energy independence; and reducing the amount of nuclear waste that eventually would be placed in a repository. These are opportunities too good to pass up.

*Produced by Citizens for Nuclear Technology Awareness.*



*Clint Wolfe is the executive director of Citizens for Nuclear Technology Awareness (CNTA) and formerly chaired the Technical Advisory Panel to the Department of Energy's Plutonium Focus Area. For more information go to [www.c-n-t-a.com](http://www.c-n-t-a.com).*

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5 July, 2012

Letter to the Editor  
*Scientific American*

The article by David Biello, "Trashing the Element from Hell," in the July edition of *Scientific American* does not explain why the U.S. is engaging in the mixed oxide (MOX) fuel program in the first place and alludes to "experts" who are recommending alternate approaches to MOX for the disposition of weapons grade plutonium. Why we are making this trip and where we have been on this journey are important aspects of the issue.

After the dissolution of the Soviet Union, the Clinton administration made treaty obligations with the Russians in 1993 to convert weapons of mass destruction into energy for peaceful purposes, an initiative dubbed "Megatons to Megawatts." As a result of that initiative, highly enriched uranium, which had been in Soviet weapons targeting the U.S. and our allies, was sold to the U.S. and blended down to make low enriched uranium for fuel for U.S. nuclear reactors. Fully 50 percent of our nuclear generated electricity in recent years or 10 percent of our total electricity generation in the U.S. derives from former Soviet weapons. Negotiations between the U.S. and Russia as to the fate of plutonium-based weapons material resulted in 2000 in a Plutonium Management and Disposition Agreement, in which each country committed to dispose of 34 metric tons of plutonium. The Russians were aware that many approaches that might environmentally immobilize the plutonium in some relatively intractable matrix, such as a ceramic puck, still left the plutonium in a form that could be processed and recovered for use in weapons if we ever changed our minds. All options for disposition of plutonium were multi-billion dollar projects and in the end all options but one led to very expensive nonproliferation safeguards and security measures "ad infinitum." That one option was MOX. Exposure of the plutonium in a nuclear reactor fuel cycle changes the nature of the plutonium in such a way as to render it unattractive for use in a nuclear weapon.

In addition to the obvious benefit of reducing the attractiveness of the plutonium for weapons, thereby reducing concerns over proliferation and many of the costs associated with safeguards and accountability, MOX provides additional benefits. Thirty-four metric tons of plutonium can provide electricity for a million homes for 50 years, a product worth tens of billions of dollars. No other option has any cost recovery component, so MOX embodies the benefits of disposing of the weapons threat, creating clean electricity for 50 million homes, recovering at least partial cost of the program, eliminating the permanent costs of safeguarding the material, and representing an accomplishment achieved by two nations who were near nuclear war, allowing them to step back from the brink of unthinkable destruction and to instead use those instruments of war for peaceful purposes.

We made the right choice, we are over halfway to completion of the MOX facility, changing course would be much more expensive than staying the course, we need to demonstrate our commitment to our treaty obligations, and bask in the comfort of knowing that mankind can make decisions of this importance and actually pull them off. You see, the only things from Hell are the uses that man chooses for the elements.

Clinton R. Wolfe, Ph.D.  
Executive Director  
Citizens for Nuclear Technology Awareness (CNTA)

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25 March, 2012

Guest Column  
*The Augusta Chronicle* - Augusta GA

### **Don't believe 'environmental groups' about SRS MOX project**

**By** Clint Wolfe, Ph.D.

I read an article in this newspaper March 14 that reported contentions by "environmental groups" (read that as anti-nuclear, anti-Savannah River Site) that the SRS mixed-oxide project costs were too high.

They based their concern on increased operating costs and costs to modify facilities rather than building a new facility to disassemble plutonium pits. The latter approach, if taken, is a cost-saving strategy, not an increase in cost.

**ANOTHER PERPLEXING** statement in the article is: "The groups contend the MOX program's operating costs will exceed \$10 million." Indeed, the project's own estimates are that annual operating costs of the facility will be on the order of \$400 million, creating several hundred jobs for the next 20 years.

I spent a portion of my career participating in deliberations concerning the disposition of plutonium pits and other plutonium-bearing materials. I can assure you that there is no responsible, low-cost approach to managing plutonium. Every proposed solution costs a lot of money and/or leaves the plutonium vulnerable to recovery for use in nuclear weapons, and that includes what we are doing now - storage and surveillance.

The MOX project not only converts this material into a form that can never again be used for nuclear weapons but into a fuel that will produce \$50 billion worth of electricity and will enable us to eliminate the expense of storage and surveillance of the plutonium in the future. From a societal point of view, we accomplish all of our stewardship and nonproliferation goals; eliminate the need for future costs of management of this material; and generate pollution-free energy.

We should not forget the reason we are doing this. We made a deal with the Russians after the collapse of the Soviet Union to reduce the number of strategic weapons in our arsenals. The Russians knew that the MOX approach would assure them that the plutonium would not be used in weapons again.

**AS PART OF** the same deal we agreed to buy enriched uranium from dismantled Soviet weapons. Those weapons once aimed at the United States and our allies now supply 10 percent of our electricity. These programs brought relief to a generation of Americans, Russians and people of all nations who had been living under the cloud of the Cold War, fearing the worst.

The MOX project is an incarnation of the notion of turning swords into plowshares. We should rejoice that we have agreements that reduce the nuclear weapons threat while turning the weapons into energy for schools, hospitals, manufacturing and homes. One has to wonder how a legitimate "environmental" group can oppose a project that is such a perfect solution to the problems at hand. This project has not had a single environmental violation; has recorded more than 8 million work hours without a lost day because of injury; compiled a superb safety record; and the latest Nuclear Regulatory Commission inspection reported that the project is up to all safety and quality standards.

These groups complain that there are no takers yet for the MOX fuel. But when it is economical for utilities to use the fuel, agencies will buy it. It is a business decision. Getting paid for any of the cost of production of the MOX fuel is a bargain, as no other plutonium disposition option has any recovery-of-cost option.

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**THEY COMPLAIN** that cost estimates for the completed project have changed. Of course, the final costs of the project will be different than projected in 2007 - prices change. The actions of these groups to obstruct progress on nuclear projects - whether it is MOX, new nuclear power plants or nuclear materials management programs - also contribute to the costs of these projects. Time is money and unnecessary delay increases costs, which you, the taxpayers, pay.

SRS is the place to deal with the nation's energy issues, and the MOX project fits right in with all the other critical programs at SRS. The project has been conducted safely and at a high level of excellence that we have grown to expect from the Department of Energy and the National Nuclear Security Administration, and their contractors.

While we all want SRS programs to be conducted with the same respect for the environment to which we have grown accustomed, it is time to say "no" to these so-called "environmental" groups.

(The writer is executive director for Citizens for Nuclear Technology Awareness.)

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16 March, 2012

Letter to the Editor  
*The Aiken Standard* - Aiken SC

**Environmental report misleading and one-sided**

The *Aiken Standard* recently published an article about a 75 page report that purportedly described the Radiation and Public Health Project's study related to contamination at or near the Savannah River Site and consequential effects on local health status. The *Aiken Standard* article was fine, but the subject report is not only misleading; it is just plain wrong.

The report is unfortunate in that Department of Energy may at some point feel compelled to respond to it, at significant cost to taxpayers. The report has 2.5 pages devoted to evaluations and conclusions that are unscientific at best. The report suggests correlations exist between radio-sensitive illnesses and small changes over time in monitoring results at SRS. The radiation levels in question in the report are thousands of times less than those that are believed to have any impacts on human health. So what possible health significance can there be in small differences in those levels?

The sponsors of this report were described in the article as environmental groups. More appropriately, they can be described as anti-SRS, anti-nuclear zealots whose frivolous disregard for the truth will cost the American taxpayer dearly at a time when the country needs to spend its money wisely. These groups have called for further investigation.

We call on DOE to continue its long-standing practice of cooperation with appropriate agencies in South Carolina and Georgia to monitor the environmental impacts of the SRS, but not to spend one cent responding to this ill-conceived nonsense.

Clint Wolfe  
Executive Director  
Citizens for Nuclear Technology Awareness

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17 February, 2012

Letter to the Editor  
*The Augusta Chronicle* - Augusta GA

**Vogtle project is a boon**

Feb. 9, 2012, is a date that will always be special to me because that is the day the Nuclear Regulatory Commission approved the Construction and Operating License application filed by Southern Co. for construction of two new nuclear power plants at the Vogtle site in Waynesboro.

Any day now we expect to hear a similar announcement relative to SCANA's application to build two new units at the Virgil C. Summer station in Jenkinsville, SC. These new plants will provide electricity safely and economically, and will replace or eliminate the need for fossil fuels to generate that power.

These developments will be very positive for the regional economy as thousands of construction workers will be employed as the plants are built. As the plants come online, hundreds of permanent jobs will be created to operate the new facilities. The big winner will be the environment, as these plants have virtually zero carbon emissions compared to the thousands of tons of emissions that are released into the environment if fossil fuels are used to produce an equivalent amount of energy.

We wish Southern Co. and SCANA every success as they blaze a trail not followed in more than 30 years. Let the renaissance begin!

Clint Wolfe  
Aiken, S.C.