Letters to the Editor and Guest Editorials of 2013.

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28 December, 2013

Positive polls signal bright future for nuclear energy
By Clint Wolfe, Ph.D.
Guest Column for *The Augusta Chronicle*
Augusta GA

Since nuclear power has an impressive record for safety and good economic performance in the United States, and doesn't face the price volatility that natural gas does, it will be with us for a long time.

Consider safety. These days, people who live near nuclear plants tend to show even greater support for nuclear power than the general public does. According to a national poll, 81 percent of the people who live within a 10-mile radius of a nuclear plant favor the use of nuclear power - 47 percent strongly. Among the public at large, 68 percent favor nuclear power, 29 percent strongly.

EVEN MORE REVEALING, 86 percent of plant neighbors say they have a favorable impression of the nuclear plant closest to where they live and the way it has operated in recent years. Safety is the main reason for this view, inasmuch as 84 percent gave their local plants a high rating for safety.

What seems so revealing about the poll is that it indicates supporters of nuclear power are being upstaged by opponents whose false claims seem to garner much of the attention from Washington policymakers. This is especially clear if we try to understand why the current administration, which professes to be concerned about climate change, did not include carbon-free nuclear power in a directive requiring the federal government to purchase 20 percent of its electricity from renewable energy sources by 2020. Anyone who talks about a lack of support for nuclear power simply hasn't done the math.

The poll, conducted by Bisconti Research, found that of those who live near nuclear plants, 68 percent said that if more electricity-generating capacity is needed, it would be acceptable to add a new reactor at a nearby site.

THE EVIDENCE IS overwhelming that by failing to respond effectively to public support for nuclear - by not even making the need for a balanced mix of sources a top energy priority - the administration is impeding the long-term growth of nuclear power and stunting potential reductions in our greenhouse gas emissions. A forecast by the Energy Information Administration gives it only 3 percent of new capacity for electricity generation through 2040 - the same as for much-criticized coal.

TRUE, CHEAP AND abundant natural gas is partly to blame. EIA forecasts that gas-fired electric power will grow 20 times as fast as nuclear power through 2040. The sluggish economy also is a factor, reducing the need for new power plants in many states. This is bad news for those who want to reduce carbon emissions from our energy sources and have more stable prices for energy-producing fuel. While natural gas is a cleaner-burning source of energy than coal, leakages of natural gas (methane) into the atmosphere contribute to the problem, as methane is a much more potent greenhouse gas than carbon dioxide. Leakages occur during extraction, handling and transportation of natural gas. When natural gas is burned, carbon dioxide is the greenhouse gas produced.

Consumers will be at the mercy of relatively unstable prices for natural gas, as gas prices can be extremely volatile and represent a large portion of the cost of generating electricity. Nuclear fuel, on the other hand, represents a relatively small percentage of the cost of generating electricity.

WE SHOULD KEEP in mind that nuclear power plants in the United States provide extraordinary economic benefits. Here at home, Georgia's four reactors provide 28 percent of Georgia's electricity and South Carolina's seven reactors generate 51.2 percent of the state's power. Based on national averages, each reactor employs between 400 and 700 highly-skilled workers, has a payroll of about $40 million and

contributes $470 million to the local economy. Additionally, four reactors using advanced technology are under construction in Georgia and South Carolina, moving appreciably nearer reality.

With public support and an attentive government, nuclear power should have a very bright future.

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21 December, 2013

Adequate MOX funding still needed
By Clint Wolfe, CNTA Executive Director
Letter to *The Aiken Standard*
Aiken SC

A recent headline in the Aiken Standard shouted out good news for Aiken and for hundreds of employees at the Savannah River Site who are working on the Mixed Oxide Fuel Fabrication Facility - or MOX.

The 2014 Defense Authorization Act proposes to provide $360 million for MOX for 2014, which is $40 million more than was in the president's budget request.

Lest we get giddy over this very real success, we should realize that this level of funding is still far short of what is required to recoup time on scheduled implementation of this program. It does, however, buy time to fight another day.

To be sure, another fight will be in the offing as opponents of MOX continue to rail against the project - citing overruns, life-cycle costs including operations and lack of customers for the fuel.

They will convince the government to evaluate other options again - this has been done over and over again at great expense - but the agreements with the Russians specify eliminating plutonium 239 by turning it into MOX fuel. Other approaches to dispose of plutonium were rejected during negotiations with the Russians in favor of a method to eliminate plutonium 239, i.e., MOX.

Proponents of other approaches have not shared with us how they will get the Russians to agree on what their life-cycle costs would be. Indeed, doing nothing has unlimited costs to the American taxpayer as annual costs for safeguarding, surveillance and accountability of plutonium 239 amount to hundreds of millions of dollars per year ad infinitum.

The "lack of customers" argument is a specious one because this project was never intended to make money from sale of fuel. It was only to provide some measure of cost recovery that will still happen when we get close enough to delivery dates for fuel assemblies.

It is unfortunate that the Aiken Standard chooses only to include opinions such as those attributed to Friends of the Earth in what are supposed to be news articles without balancing them with opinions from citizens who have a different opinion of the value of the project.

Everyone is entitled to their opinions, but shouldn't they all be on this page with my letter?

17 November, 2013

Faux environmentalists allowing more pollution by fighting nuclear
By Clint Wolfe, CNTA Executive Director
Guest Editorial for *The Augusta Chronicle*
Augusta GA

A colleague sent me an e-mail the other day prefaced with his remark, "Enviros will never get it." He was sending me an article from Bloomberg News on Nov. 5 reporting that California's Air Resources Board's website posted data showing that emissions from natural gas fired power plants rose 35 per cent to 41.6 million tons last year in California. Chief among the reasons for the rise in emissions was the shutting down of the San Onofre nuclear power plant in January 2012.

This plant had long been a target of anti-nuclear activists (masquerading as environmentalists). There was nothing wrong with the reactor, but the new steam generators were undergoing some vibration problems at full power and the utility, the state regulators, and the Nuclear Regulatory Commission could not agree on how to economically return the unit to full power. Tiring of the uproar, the bad press, and the frustration of dealing with indecisive regulation, the utility did what any good business entity would do - they took advantage of record low natural gas prices and replaced the emission free nuclear power with power producing tens of metric tons of air pollution. Californians, and to a lesser extent, all of us, are left to deal with the consequences of this "victory" for the bogus environmentalists. We cannot blame utilities for behaving as rational economic beings when it comes to their choices for providing the electricity we all demand. If regulation and lack of energy policy make it financially risky to invest in nuclear power, they are left with only one real alternative - fossil fuels. If hydropower is available it can help. Wind and solar cannot be relied upon without equivalent capacity available from fossil or nuclear.

Consider these consequences - no less than the World Health Organization estimates that as many as 7 million people die each year due to the burning of fossil fuels. This is the immediate impact on human health and ignores the probable longer term impacts on acidification of our oceans and climate change. If we use data from peer reviewed scientific studies by James Hansen who first sounded the alarm as a NASA climatologist concerning the potential for climate change, we can quantify the effect on human health of the San Onofre shutdown. Hansen's data showed about 30 deaths per million tons of carbon dioxide emissions. Since California had about 41.6 million tons of emissions in 2012, more than 1200 people probably died due to air pollution there. About 300 deaths would therefore be attributed to shutting down San Onofre. These rates apply to 2012 and to every year in the future where the current status quo is maintained.

It is frustrating to know that most anti-nuclear sentiment stems from fear of radiation exposure. It is frustrating because this country's nuclear power safety record is spotless with respect to harming the public, despite persistent erroneous claims to the contrary. Frustrating because fear of radiation is unwarranted except for very high doses, yet we let unwarranted fear deny us the benefits of clean affordable energy. Frustrating because no matter how many unbiased, well designed studies debunk the myth of the dangers of low-level radiation many people prefer to cling to the fallacy that low levels of radiation are dangerous. This leads to our country relying on energy sources known to pollute, kill, and sicken rather than a source which has never had a fatality after 55 years of providing what is now about 20 per cent of the nation's electricity. All credible scientific studies of low levels of radiation are at worst inconclusive regarding negative effects on human health, and at best, show a beneficial effect.

It is time we came out of the nuclear dark ages into the bright light of clean safe energy for our people and our planet.

4 November, 2013

Nuclear community vital to state, region
By Charles Munns
Special to *The Aiken Standard*
Aiken SC

Can you describe what makes our community so special? What do you feel about our nuclear industries? Have you tested your beliefs lately? Did you attend any of the many public educational events last week: Teller Lecture, Pandora's Promise Movie, or the Citizens for Nuclear Technology Awareness Educational Forum?

I did and have to say that it was worthwhile, informational and enlightening. I learned that more than $1 out of every $4 spent in our region is a result of our nuclear industries, the same for occupied homes - 1 of every 4. A majority of the support going to our local charities is from our Nuclear Community. Throughout the week, I learned how important the nuclear industries are to our nation's security, to our state's competitiveness, and to our local quality of life.

At the national level, our nuclear community provides national security through a Strategic Deterrent Capability, through enhancing our non-proliferation efforts, and by contributing to homeland security sensors, detection and forensics. All together we contribute more than any other region. The Savannah River Site, a part of our nuclear industry, provides national leadership for the care of our environment.

We have the Department of Energy's only Environmental Management National Laboratory, and while it also does many other things, it leads in providing science, techniques, procedures, and standards for the world in the care of nuclear materials. We also lead the nation in energy security through the percentage of clean, reliable and economical "base load" nuclear provided electrical power.

At the state level, the nuclear industries provide low and stable electrical rates that are driving our economic engines. They are among the largest employers in the state, providing jobs, local procurement, and tax revenue. The nuclear culture of professionalism, exactness, safety, and "measure twice cut once" spills over into other industries and makes them better. Locally, besides their very significant economic impact - $1 out of every $4 spent in our town - these industries have contributed to what Aiken "is" and provide a promise for what it can be. Its contributions to our region are immense: a shared history, a "glue" to hold together our community, the strengthening of our social capital, political capital and financial capital, the volunteer leadership in our community agencies, our social groups, our church activities, and our recreational programs. Our region would not be as we know it without our nuclear community.

Whether you understand the nuclear industry or not, can articulate its value or not; it's good to reflect on how you view it and why you feel that way. I would suggest you watch or set your DVR/VCR's to record the Robert Stone movie "Pandora's Promise." It is scheduled to air on CNN on Nov. 7 at 9 p.m.

Healthy communities understand and support the industries and cultures that make them special.

In our case that is our nuclear community, our manufacturing industries, our equestrian sector, the retirement communities, and Aiken's rich historical roots. This month is a good time to learn more about the value provided to us by our nuclear community.

Charles Munns is an Aiken resident, a retired vice admiral in the U.S. Navy, and former CEO of Savannah River Nuclear Solutions, LLC.

18 October, 2013

Saluting the contributions of nuclear science
By Karen Patterson
Special to *The Aiken Standard*
Aiken SC

Monday, Oct. 21, begins the 4th Annual National Nuclear Science Week sponsored by the National Museum of Nuclear Science and History, a member of the Smithsonian Affiliations program. Aiken and the Central Savannah River Area, or CSRA, are proud to host this year's National Nuclear Science Week, a celebration of the nuclear sciences.

I salute the efforts of the many local organizations supporting the CSRA's well-deserved recognition as the focus of the week. And I urge you to take this opportunity to get a better understanding of nuclear energy. Albeit with carefully crafted language, the 2013 United Nations Climate Change Report makes clear that humans' reliance on carbon-based fuels is changing the earth's climate and will change the way we live for centuries to come.

Right now, in today's world, nuclear power is the best solution we have to ease our climate crisis. However, so many people misunderstand the potential of nuclear power that what should be an easy policy decision is almost impossible. The programs planned for National Nuclear Science Week will provide us the opportunity to better understand nuclear energy, and to consider why it is the right solution for lessening our dependence on carbon-based electricity.

The National Nuclear Science Week partners are sponsoring activities that provide a better understanding of the amazing energy in an atom, and its value to us, through demonstrations and discussions of nuclear science, nuclear issues, and career opportunities. Though the target audience is students, I encourage everyone to take advantage of this opportunity. There is something for everyone.

Nuclear science improves the lives of all Americans. Most residents of the CSRA probably don't realize how many and how varied are our nuclear facilities. Within a one-hour drive are the Savannah River Site, the Medical College of Georgia's nuclear medicine program, three nuclear power plants, four more under construction, a nuclear fuel fabrication facility and another under construction, a low-level radioactive waste disposal facility and technical colleges and universities with nuclear science majors.

Thousands of people in the CSRA have careers in the nuclear industry – doctors and technicians who teach, research and practice nuclear medicine; welders, electricians and pipefitters who construct nuclear facilities; engineers who design those nuclear facilities and the fuels that power them.

Then, there are reactor operators who run nuclear power plants; scientists who study the effects of nuclear activities on the environment and others who develop ways to use the power of the atom to improve our lives; health protection specialists who monitor radioactivity in the environment and doses to workers and the public; maintenance technicians who maintain nuclear facilities; the list goes on.

So what is happening this week in the CSRA?

The Ruth Patrick Science Education Center at USC Aiken will host a series of classes designed to intrigue young minds. Who wouldn't want to "journey to the center of the atom," or learn why "chemicals matter," or "probe the periodic table?"

At Workforce Development Day, high school and college students will meet people who work in the nuclear industry and learn about career options and education requirements. Many nuclear careers require an

associate's degree, others a four-year degree and still others a doctoral degree, so regardless of education goals, there are careers for everyone.

Wednesday, Plant Vogtle, VC Summer Station, and the Savannah River National Laboratory will host tours to show students what nuclear looks like, up close and personal. Not everyone has the opportunity to visit a nuclear plant under construction, but no one who does will ever forget it. The tremendous scale and the intricacy of the complex scheduling of the construction cannot be described - those projects have to be seen to be believed.

Behind the SRS security fences, Savannah River National Laboratory focuses on homeland security, clean energy, and environmental stewardship. Laboratory scientists do amazing things - developing forensic techniques that can identify the source of nuclear materials, and robots to access environments humans could not survive; studying the characteristics of bacteria that thrive in highly radioactive environments; and developing hydrogen-powered vehicles are only a few.

Wednesday night, "Pandora's Promise," a documentary about nuclear power, will be shown at the Etherredge Center followed by a panel discussion. The movie describes the conversion of five people from antinuclear activists to proponents of nuclear power, mostly because of the relief it could bring to climate change.

Thursday, a half-day seminar on the economic impacts of the CSRA's nuclear industry will complete the celebration. Panelists will discuss impacts of the nuclear industry on the economy of the CSRA, scientific contributions to the CSRA's economic engine, and the value of the nuclear education opportunities provided by local colleges and universities.

I believe the CSRA is the best place in the nation to recognize the key role nuclear science plays in the lives of all Americans and to learn about the many career opportunities in the field. Please join me in participating in this once-in-a-lifetime event and celebrating our area's significant role in the nuclear industry.

Karen Patterson is an Aiken resident and chair of the South Carolina Governor's Nuclear Advisory Committee.

25 August, 2013

Alarmists don't reveal the whole story on radiation exposure
Column
By Clint Wolfe, Ph.D.
The Augusta Chronicle
Augusta GA

Back in the 1940s an experiment to determine the effect of radiation on fruit flies earned a scientist a Nobel Prize and established the basis for what is now called the "linear no-threshold" hypothesis, or simply LNT. He observed that at high doses of radiation, the mutagenic effect on the creatures increased in proportion to increases in dosage. He reasoned that the mutagenic effect also would decrease in proportion to decreases in dosage, and concluded that there was no lower limit to harm caused by radiation - just a lower proportionate effect all the way to zero dose.

HE DID NOT report data to support his contention, but recently, a different researcher claims that the Nobel laureate *did* run experiments at low doses, but since the results did not support his earlier contention relating to proportionate harm, he chose not to reveal the data. As a matter of fact, there are no studies that show harmful health effects attributable to low doses of radiation.

It is very difficult to perform such experiments because of the ubiquitous nature of natural radiation. Every living thing and every thing that ever lived is radioactive, so it is very difficult to find sites for experiments with very low background levels of radiation. One location that is ideally suited to such studies is just outside Carlsbad, N.M., at the Department of Energy's Waste Isolation Pilot Plant.

I VISITED WIPP recently and experienced being lowered nearly a half-mile below the desert floor into a 250-million-year-old salt formation. I was there to look at the emplacement of transuranic waste, but during a briefing, one of the WIPP personnel was introduced as being in charge of experimental projects. I asked him about low-level radiation studies conducted at WIPP. He acknowledged the studies, and almost casually remarked that the biological specimens that were deprived of radiation all died while those that received normal levels of radiation thrived.

Just think - if we had these results before we zapped those fruit flies, we would all be concerned about whether or not we were getting our minimum daily requirement of radiation instead of whether our granite countertops and the banana we had for lunch were exposing us to dangerous levels of radioactivity.

A MULTITUDE OF studies have debunked the LNT hypothesis, but it is still used by the Nuclear Regulatory Commission to predict health consequences because of nuclear reactor accidents, and the National Academy of Sciences has never backed off from its endorsement of the concept dating back to the 1940s. Health physicists have used the concept to good advantage to minimize radiation exposure to radiation workers, and the Environmental Protection Agency uses the concept to regulate exposure to environmental toxins.

But using this discredited hypothesis to predict health effects has caused enormous societal harm. It has contributed to the very high capital cost of nuclear power plants, thus depriving many of the opportunity to have safe, clean electricity. It has made dealing with nuclear materials and nuclear waste more expensive than real safety concerns would dictate. Whole populations were forced to evacuate areas around the Fukushima Daiichi nuclear power stations that had radiation levels lower than background levels in other parts of the world.

MIND YOU, THE nuclear industry still would practice its rigorous radiation control regimen known as "As Low As Reasonably Achievable," even if the LNT hypothesis were discarded. The difference would be that

more emphasis would be placed on the word "reasonably." Demonstrable health effects would be the basis for tightening regulations instead of the incredibly naïve notion that one beta particle can cause cancer.

The LNT hypothesis also assumes that radiation dose exposure is additive over time and over populations. This is how large numbers of cancer deaths are predicted by alarmists from events such as Fukushima. They argue that the low doses integrated over very large populations and times lead to large numbers of cancer deaths. It is like saying that if an ingestion of 100 aspirin tablets at once is fatal, then one tablet a day for 100 days also would be fatal, or that if 100 people each take one tablet, one of them will die. This, of course, is nonsense.

THERE ARE PLACES on Earth such as Ramsar, Iran, that have background radiation levels much higher than that reported in the evacuation zones at Fukushima with no detectable health effects. If LNT were correct, all the people in Ramsar would be dead by the time they were 20 years of age. Instead, despite poor diets and little medical care, they are known for producing a high percentage of centenarians.

So, have you had your minimum daily requirement of radiation today?

(The writer is executive director for Citizens for Nuclear Technology Awareness in Aiken, S.C.)

15 August, 2013

Arts should not be lost among math, science
Column
By Clint Wolfe
The Aiken Standard
Aiken SC

Citizens for Nuclear Technology Awareness is committed to educating the public about things nuclear and improving science, technology, engineering and math, collectively known as STEM education. Worldwide rankings of nations' proficiency in these subjects among their school children show as many as 15 countries that perform better than the U.S. This realization has sparked an increased emphasis on these subjects among educators, the public and legislatures. A dedicated effort to regain a leadership position has been launched and should be supported by all of us. There are potential pitfalls however, that must be avoided.

Some cash-strapped school districts and universities have proposed reducing emphasis on subjects such as physical education, social sciences, humanities, music, and art in order to devote more resources to science, technology, engineering and math. A recent segment on the PBS News Hour featured an interview with Dr. Richard Brodhead, the President of Duke University, and actor John Lithgow. These gentlemen were cautioning against de-emphasizing the teaching of liberal arts, noting that contributions to skills such as critical thinking, necessary for all educational endeavors, are foundational to a liberal arts curriculum.

Whether truth and beauty are revealed by a particularly insightful line from a Shakespeare play, or by hypothesis, experimentation and calculation, we must respect both approaches and take from them the essential ingredients for a truly educated person.

So when we emphasize STEM, without qualification, we run the risk of marginalizing liberal arts subjects in our schools' curricula. Recognizing this, some advocates of science, technology, engineering and math, have begun using the acronym STEAM, inserting an A, for Art. This does not represent a gratuitous nod to the arts, but rather reflects on the realization that the use of imagery, music and other art forms can be powerful teaching and learning tools, even for STEM subjects.

Citizens for Nuclear Technology Awareness conducts workshops for high school and middle school teachers to enable them to introduce basic concepts into their classrooms relating to the structure of the atom and the nucleus. While the written material is effective, the learning experience is invariably strengthened by the use of "hands-on" exercises. These exercises include representing something as difficult to comprehend as the level of background radiation to which we all are exposed as inches along a yardstick. Natural background radiation from the air, water, soil, our own bodies and the sun are represented as say, about 3 inches a year.

If we have an average number of diagnostic X-rays, we can add about 3 more inches for a total radiation dose of about 6 inches a year. Ramsar, Iran, has a background dose rate of nearly 250 inches (about 21 feet) a year with no detectable health effects. So it is sometimes easier to visualize the magnitude of a measurement in a familiar unit, like feet or inches, than in millisieverts or millirem. The same effect is seen in non-technical matters such as politics, where one cartoon can convey a more memorable message than a 1,200-word opinion editorial.

It is tempting to describe science as a way to determine the truth and to describe art as an expression of beauty. I believe they are much more closely aligned than that implies. I have often invoked an inscription on the side of the science building at the university I attended many years ago, which read, "Science is Truth, Truth is Beauty."

Full STEAM ahead.

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

16 June, 2013

Report reveals truth about Japan disaster
Column
By Clint Wolfe
The Augusta Chronicle
Augusta GA

Do you remember the morning to night media coverage of the disaster at Fukushima beginning in March of 2011 and lasting for what seemed like forever? More than 20,000 people died as a result of a massive earthquake and subsequent enormous tsunami, but those two natural disasters were not what captured the most attention by the media. The media fixated on "experts" volunteering doomsday scenarios for Japan as rerun after rerun of hydrogen explosions at the Fukushima Daiichi nuclear power plants filled the airwaves. Visitors to Japan were advised to leave. Entertainment groups touring Japan cancelled performances even though they were scheduled several hundred miles away from the nuclear reactor sites.

Many Americans in Tokyo fled the country as fast as they could book seats on transcontinental flights back to the United States, flights that exposed these Americans to larger doses of radiation than they would have received had they stayed in Japan.

Hysterical anti-nuclear alarmists were having a field day as they were in great demand on news programs and talk shows. Their dire predictions of latent cancer deaths due to the radiation releases numbered in the hundreds-of-thousands. Some even questioned the inhabitability of Japan. Over time, the media circus gradually lost steam with only occasional reference to the "nuclear disaster."

There can be no mistaking the seriousness with which nuclear advocates viewed the events at Fukushima, but the human tragedy stemmed from the enormous "one-two" punch of mother-nature and the fear propagated by sensational media coverage, not from radiation releases from the nuclear reactors. These facts became clear at the end of May 2013 with the issuance of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) report on the health effects of the events at Fukushima. In a nutshell, the conclusions of the report are that lingering health effects are negligible and no deaths are attributed to radiation - including workers at the plants and the general public. You aren't likely to read about this in the newspapers, on your home page, or hear about it on your favorite news program. After all, a lot of righteous indignation was expended vilifying Tokyo Electric Power Company (TEPCO), the Japanese government, and the nuclear industry in general for months after the events of March 2011, and to admit that there was in fact no harm due to radiation releases inspires comparisons to "Chicken Little."

Even though this report finds no significant health effects due to radiation releases, it is undeniable that the "fear of radiation" is far more potent with respect to health effects than the radiation itself. Health effects related to fear of radiation and to stress of evacuation and relocation affected thousands of people. The UNSCEAR report acknowledges this effect just as it did in its 25-year study of the Chernobyl disaster where it attributes 62 deaths to radiation related causes including about half that number who were first responders. That report concluded that residents of the areas affected by Chernobyl fallout need not live in fear of lasting health effects due to radiation exposure. By far the most tragic human health toll due to Chernobyl was the 100,000 to 200,000 elective abortions chosen by prospective parents who feared radiation damage to their unborn. UNSCEAR's follow-up study on the effects of the Chernobyl accident on the unborn showed those fears were unfounded.

I submit that the accused (TEPCO, Japanese government, and the nuclear industry) are guilty of not having figured out how to communicate nuclear issues to the public effectively, but communication is not a unilateral exercise. There have to be open receptors on the part of both of the parties if real communication is to happen.

Therefore, I also submit that anti-nuclear ideologues, aided and abetted by the media, have struck such fear into those who do not understand nuclear-related issues that they have stymied effective communication on these issues and are, therefore, responsible for enormous human suffering and loss of life.

Public news media could do a great public service by reporting on the findings of the UNSCEAR report. Don't hold your breath.

(The writer is executive director for Citizens for Nuclear Technology Awareness in Aiken, S.C.)

6 June, 2013

Environmental Management budget not a smart reduction target
Column
By Clint Wolfe
The Aiken Standard
Aiken SC

One of the great things about the Savannah River Site is that the people there always get the job done, professionally and safely - that is, as long as they are given the funding to make it happen.

That is the crux of the matter with respect to recent cuts proposed for the 2014 Environmental Management budget at SRS. The Department of Energy last month detailed the proposed budgets for the several environmental management sites across the country.

Ironically, the site that arguably has performed the best with respect to risk reduction and significant progress against goals is also the site that received the biggest proposed budget reductions - SRS. Although the proposed reduction of about 8 percent - $107 million dollars - may not seem at first glance to be a show stopper, the manner in which the cuts are distributed has the potential to seriously impact several programs.

The removal of liquid waste from high-level waste tanks, production of high level waste glass canisters and millions of gallons of salt waste could be drastically reduced. This comes after a record year of accomplishments that included two high level waste tank closures and record glass canister and salt waste production.

From a totally economic point of view, the country would be much better served to accelerate these programs if we want to save money and reduce risk.

Much of the cost of these programs is fixed, based on keeping facilities in a minimally safe condition, whether or not progress is made in processing liquid waste. Actual risk reduction gets accomplished with those budget dollars in excess of the fixed costs. When budgets get cut, it is the risk reduction dollars that get cut, so the impacts can be many times more than the apparent 8 percent reduction.

The budget cut at SRS comes almost exclusively from the liquid waste budget, or about 25 percent of that budget. If these cuts stand, most of the money will be spent, but relatively little of the scope will be accomplished. In fact, it is possible that other funded activities on site will produce waste streams in excess of the available budget capacity of the high-level liquid waste system.

This means that instead of reducing the inventory of high-level waste, we might actually see an increase in what our state regulators, the S.C. Department of Health and Environmental Control, believe is the most significant environmental risk in South Carolina.

Another, perhaps unintended consequence of these cuts is that the relationship between the DOE, the local community and the state of South Carolina is damaged. There are agreements between the DOE and the state that contain various milestones - milestones that have been met in a timely manner, but future ones that now are in jeopardy.

It is conceivable that in two or three years' time, the fines that the DOE must pay for missing these milestones will exceed the amount of the budget cuts. Where is the economy in that scenario? DHEC has been an important regulator of activity at SRS, and they have worked with the site to establish reasonable criteria for the clean-up mission. They will not be pleased by this betrayal of trust.

Then, add in the factor that our community will see the waste stay in the tanks much longer, increasing the chance of tanks eventually leaking into the environment.

For those who would say that this is merely the result of trying to get federal spending under control, I would say "go cut pork." This budget is not "pork."

SRS has done the nation's bidding for more than 60 years, and has performed its role in an outstanding manner. Because of those missions that were and are critical to our nation's security, legacy wastes have resulted. This is not Aiken's waste or South Carolina's waste - this is the federal government's waste, and we need the budget restored to safely and effectively process this material.

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

21 March, 2013

Nuclear and equine waste
Column
By Clint Wolfe
The Aiken Standard
Aiken SC

Let me assure the reader that I am not advocating banning horses from South Carolina. Even though there is ample evidence that these beasts and the copious waste they produce are dangerous to human health and safety, many people, like my wife and I, have accepted the significant risks of horse ownership. She, by riding almost daily and I, who actually rode once, by helping to make a good living for veterinarians, farriers, trainers and even a few jockeys.

My usual passion is advocating for nuclear education, making maximum use of the nation's investment in the physical and human assets at the Savannah River Site and for nuclear technology in general, including nuclear generated electricity. A key to realizing the promise of clean nuclear energy is to deal with used nuclear fuel. The government predicts that a permanent repository for the fuel will not be available in the U.S. until 2048. Acting on recommendations from its Blue Ribbon Commission, the government will be seeking a site for a pilot project for "interim storage" of some very old used fuel.

Consolidation of the fuel at one or more interim sites is considered wise until a permanent repository is available. The fuel is currently stored at more than a hundred sites that have or had nuclear reactors. The SRS locale is an obvious choice for such a pilot facility since the site has been accepting foreign and domestic research reactor fuel for a couple of decades and has an outstanding record of safely managing nuclear materials for 60 years with very effective security.

The government will need to invest significantly in some community to host this pilot facility. Although the Aiken area is the obvious choice, other communities will vigorously pursue the opportunity as the "Not In My Backyard" sentiment gives way to the lure of good jobs, enhanced tax revenue, and improved educational and cultural opportunities.

That has been the experience of Carlsbad, N.M, with respect to the siting of the Waste Isolation Pilot Plant near their community. Indeed, the Aiken area experienced the same by having SRS near our community.

Whether the "pilot project" represents a great opportunity or something we would rather not pursue will depend on the details of the initiative. A recently released study, commissioned by the SRS Community Reuse Organization, is available on their web site and is a must read to be fully informed on this subject.

So what does this have to do with horses? Some in the Aiken area are promoting a concept referred to as "Don't Waste Aiken." Some supporters of this movement to prevent the siting of an interim storage facility at or near the SRS are reputed to be "horse people." Egad! If this is true, then in the words of that famous swamp opossum philosopher, Pogo, "We have met the enemy and they are us."

Since the nuclear age began, thousands of Americans have died prematurely from accidents involving horses and from diseases nurtured by equine waste. These include Tetanus, West Nile Virus, Typhoid, Salmonella and infectious diseases spread by mosquitoes that breed prolifically near equine waste.

In the same time frame, not one American has died due to nuclear reactors or waste from them. So, ignoring disease related deaths - just based on accidents alone, the score is about 15,000 to nothing, in favor of the horses.

Yet, horses are consistently characterized as "beautiful" and nuclear waste as "deadly" or "lethal." Go figure. So, should we ban horses in South Carolina? Don't even think about it.

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17 February, 2013

Too much is at stake to throw MOX nuclear project into jeopardy
Guest Column
By Clint Wolfe, Ph.D.
The Augusta Chronicle
Augusta GA

In recent weeks, critics of the National Nuclear Security Administration's nuclear nonproliferation project have been repeating criticisms that are not worthy of an enlightened discussion of the merits of the program.

A $6.8 billion mixed-oxide, or MOX, fuel plant is under construction at Savannah River Site. The fuel is a key part of a plutonium disposition agreement between the U.S. and Russia to eliminate 34 metric tons of plutonium each from their respective nuclear weapons stockpiles.

MIXING PLUTONIUM oxide with uranium oxide produces MOX fuel that can generate clean electricity in a nuclear power plant. The United States and Russia agreed to this technology after thorough evaluation of other methods of plutonium disposition. Every option would have cost billions of dollars to implement and cost hundreds of millions of dollars annually to provide surveillance, inspection, and security forever - all except one - MOX.

Use of plutonium in MOX fuel changes it in a way that makes it unattractive for nuclear weapons, so the plutonium is not just buried, immobilized or stored - it is eliminated from use in weapons.

Critics, such as Rep. Edward Markey, D-Mass., say the fuel is dangerous, that the government has no customers for it, and that the project will cost more than estimated.

Let's address these one at a time.

The fuel is not dangerous. MOX has been used in more than 30 reactors worldwide for decades and more reactors are being planned to use it. The claim that the fuel is dangerous apparently is linked to paranoia concerning plutonium in general, and completely ignores the safe operating history of MOX fuel.

As for lack of customers, this assertion is way too early to claim, and ignores the purpose of this project, which is to eliminate plutonium, not make money. Obviously, if the nation can realize some cost recovery that would be a bonus, but the real prize is the elimination of the plutonium both in the United States and Russia. There will be customers for the fuel in the long run even if the government uses it for its own purposes.

RECENTLY, AN NNSA official told a Citizens for Nuclear Technology Awareness breakfast gathering of more than 100 people that negotiations are intensifying with at least two different utilities. There is also the Tennessee Valley Authority, which has expressed interest in burning MOX fuel in its reactors.

As for the concern that the project will cost more than estimated, that is a virtual certainty. There are a number of reasons for this, many of which are related to the 30-year hiatus in nuclear construction in this country. Rather than speculate, we can assume that the costs of the MOX project would increase at least as much as similar non-nuclear projects over the same time period.

THERE WERE three construction projects associated with this program - the Mixed Oxide Fuel Fabrication Facility (MFFF); a Pit Disassembly and Conversion Facility (PDCF); and a Waste Solidification Building. Since 2005, the Handy-Whitman index of utility construction projects in the southeastern United States shows

costs increasing by about one-third. Some components, such as electrical equipment and transformers, have greatly increased by approximately 72 percent and 45 percent, respectively, over the same period.

The budget challenges are described in President Obama's 2013 budget request to Congress, which identified several "significant challenges" to constructing the MOX plant because of unexpected market and economic conditions. Over the years through several reviews, NNSA has reported to Congress that project reserves have been used to make up for funding shortfalls.

As a result of these issues, and because of a dated budget baseline first written in 2005, the contractor has been asked to recalculate a new budget baseline based on risk management and current market prices and conditions. While this will project an increase in the overall cost of the MOX project, it will reflect a more accurate cost accounting and estimation of the project. For example, in 2005, diesel fuel was $1.35 a gallon. In 2012, diesel fuel was more than $4 a gallon, an astounding increase in cost. This raises the cost of everything, including materials, transportation and fabrication.

HOWEVER, THE government has an alternate concept it is pursuing called a "preferred alternative," which eliminates the need for the PDCF and instead modifies existing facilities to provide plutonium in the appropriate form to the MFFF. This has the potential to lower the final cost of the program by a significant amount.

In any event, it is reckless and foolish to talk about terminating the program because of costs since the facility is more that 60 percent complete. It will cost a lot less to finish than to start over on another multibillion-dollar program that can't really eliminate the plutonium threat the way that MOX can. Russia currently is ahead of us in progress toward eliminating their plutonium, but it has made it clear that it will not eliminate its stockpile until America is ready to do likewise. The programs are, therefore, inextricably linked.

ON DEC, 3, 2012, barely two months ago, President Obama gave a talk at the National War College in Washington, D.C. His remarks were delivered on the occasion of the 20th anniversary of the Nunn-Lugar initiative, which the president called one of the smartest and most successful national security programs.

He lauded the visionary leadership of the two former senators, Nunn, D-Ga., and Richard Lugar, R-Ind. (Yes, in those days it was OK for members of opposite parties to work together for the good of the country.) He urged the nation to be vigilant with regard to the nonproliferation theme of Nunn-Lugar and to continue to invest in people and technology: "We have to sustain the partnerships we have, and that includes Russia." The president also said, "It took decades - and extraordinary sums of money - to build those arsenals. It's going to take decades - and continued investments - to dismantle them."

The president is right. Rep. Markey is wrong.

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6 February, 2013

Whither nuclear at SRS?
Column
By Clint Wolfe
The Aiken Standard
Aiken SC

It is great sport to denigrate government programs. It is easy to do, and not many people will argue with you. In contrast, I want to remind you of some very significant accomplishments at the Savannah River Site and encourage you to join me in supporting further SRS involvement in solving many of the nations' remaining nuclear issues.

SRS has the physical and human assets to deal with a wide range of issues of national priority that could keep more than 10,000 people working there for a long time. Issues such as closing the back end of the nuclear fuel cycle, demonstrating clean energy concepts, completing the environmental cleanup, eliminating weapons grade plutonium as designated in our agreements with the Russian Federation, closing nuclear high level liquid waste tanks, and continuing the impressive progress toward reducing the Cold War footprint at the site. Last year SRS closed high level waste tanks No. 18 and No. 19 (the first ones at SRS in 15 years) and are on track to close two more in 2013. They also are about to pour their 3,600th canister of vitrified high level waste. More than 48 million curies of nuclear material have been secured in borosilicate glass, and the saltstone disposal facility, designed to take lower curie content material, also had a record year in 2012.

Without fanfare, the site essentially completed shipment of transuranic wastes to the Waste Isolation Pilot Plant in New Mexico, more than 20 years ahead of schedule. By the end of 2013, SRS plans to have shipped all transuranic waste to WIPP. These transuranic wastes included material generated at SRS and shipped here from Rocky Flats and Mound Laboratories as those sites were de-inventoried and closed. This astonishing accomplishment contradicts the often heard complaint that nuclear waste stays wherever it is.

The risk reduction corresponding to these accomplishments is enormous. SRS has assets to deal with other high-priority national issues. President Obama has cited the need for continuing the cleanup of the cold war legacy, proceeding with nonproliferation programs, energy independence, clean energy production, development of biofuels, interim storage of used nuclear fuel, and leadership in nuclear reactor and fuel cycle technology. Despite SRS's attributes, the role that it will play in resolving the nation's energy issues is uncertain due to a number of factors.

First, DOE's visionary road map adopted for the future of SRS presents a scope challenge for the current landlord at the site. The landlord is DOE's Environmental Management organization, whose charter centers on cleanup of Cold War legacy materials. Environmental Management's priorities do not include many of the national priorities mentioned above. Although many good people in Environmental Management see no conflict in its mission and using the assets at the SRS to tackle the nation's nuclear issues, all of which include waste and environmental management (which are precisely Environmental Management's scope), apparently they have been told to use those assets on legacy cleanup - period.

So we have a situation where bureaucrats in Washington, D.C., stymied an initiative by the local DOE-SR and its contractor to enter into agreements with potential suppliers of small modular reactors to demonstrate these new reactors at SRS, apparently because this activity was not dictated by the right bureaucrat. This decision strikes a chilling blow to the SRS, its national laboratory (namely, the Savannah River National Laboratory - SRNL) and its visionary leadership. It is incomprehensible that some in Washington, D.C., place themselves in the position of defining (indeed, prescribing) legitimate activities for a national laboratory at such a micro-level. SRNL was in the process of responding to a DOE Federal Opportunity Announcement in conjunction with industry partners to site one or more SMRs at SRS when

they were told to "cease and desist." Some of the qualities of these reactors, depending upon the particular design, are that they require less space, produce less waste, consume used nuclear fuel (high level waste), require less security, and don't require refueling. They are ideal for supplying power to military installations and remote locations, powering desalinization plants, or as replacements for coal-fired power plants rated at less than 300 megawatts.

SRS is the perfect location to demonstrate these concepts which fit very well with the assets and skill sets at SRS and SRNL. In addition, SRS has well characterized sites from previous initiatives that would shorten the time frame and lower the cost of demonstrating such reactors. Appropriate security is already in place at SRS with an excellent track record. The National Defense Authorization Act directs the National Nuclear Security Administration to consider the use of such reactors to provide the nation's tritium supply and to site the production mission at SRS. So don't assume there are no SMRs in the future of SRS. If there has been inappropriate scope creep, I would submit that it occurred within the bureaucracy in Washington, D.C., and not at SRS.

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