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“(New)Speaking of Chernobyl....” -- Reflections after the Anniversary

To the Editors:

Having just returned from the Chornobyl+20 Conference in Kiev, Ukraine, I was “greeted” with a bout of flu and the spate of “it-can’t-happen-here/nuclear option” articles promoting the nuclear industry’s “nuclear renaissance” PR campaign. I’m not sure which of the two is more repugnant. One can recover from the flu with treatment; from what I experienced in Ukraine, the same can’t be said of nuclear power expansion.

The “newspeaking” of the world’s worst nuclear disaster is nothing new, usually taking one of two forms: 1.) “it can’t happen here, because *our* reactors are better than *theirs*,” and 2.) “because we have our reactors under control, we need to embrace nuclear power to fight global warming.” Neither of these contentions is either logically or factually correct. William Sweet’s “The Nuclear Option” (NYT, April 26, 2006) is rife with examples of both.

Sweet’s piece and its ilk are dangerously insidious on two levels. While seeming to be *somewhat* critical of past nuclear failings, and *somewhat* supportive of renewable energy resources, their main thrust is to lull one into a false sense of security about the continuing hazards and failings of nuclear power, both “theirs” and “ours;” to win the reader’s acceptance by the destruction of well-chosen strawmen, without commenting on the unfavorable realities intentionally omitted.

As for the first strawman, of course Chernobyl-type accidents can’t happen “here.” Aeroflot accidents don’t happen to our Boeings; and Titanic accidents don’t happen to our ships. Does this logically mean that none of our planes ever crash, and none of our ships sink? Of course not! The whole point is totally irrelevant. This smugness is exactly the kind of complacency that Soviet officials warned the world against after their accident. What we need to discuss openly is what kinds of accidents *our* plants *are* capable of.

Chernobyl newspeakers have never been intellectually honest about the design flaws built in to US reactors. While praising Western containment structures as “robust,” none ever mention that the 22 GE Mark-1&2 containment systems^{1,2} in operation in the US today would also have failed, experiencing the same pressure levels as those present during the Chernobyl accident. Or that this same design sites the reactor spent-fuel pools *above grade*, making them particularly vulnerable to cooling water pipe ruptures and total drainage of the pools’ cooling water as a result of a catastrophic accident or terrorist event. This would result in fuel melting and a fire which would help distribute the radioactive inventory to the surrounding environment – just like at Chernobyl.

Sweet speaks disparagingly about the Soviet Chernobyl reactor operators, without honestly critiquing our own Homer Simpsons – and exist they do, both as reactor operators/managers, and regulators at the Nuclear Regulatory Commission (NRC). For example, one Ukrainian scientist at the Chornobyl+20 Conference was only half joking when noting that “only one centimeter of stainless steel was all that prevented the world from receiving Ohio radiation” from the Davis Besse reactor³ in 2002. Boric acid had corroded away all but one fateful centimeter of stainless steel from the reactor vessel head. Had this corrosion penetrated the vessel head, an enormous release of radiation could have ensued. “Our” plant operators didn’t think the corrosion problem was serious, and asked “our” NRC regulators for permission to keep the reactor operating until its scheduled maintenance outage. And, as is so often the case, NRC regulators blithely granted permission.

As for the second logical failure, the above illustrates that “we” don’t have “our” reactors under control at all. For the past eight years Exelon reactors in Illinois, and several other reactors nationally including Indian Point near New York City, have been leaking radioactive tritium⁴. Utilities didn’t bother to tell the public, especially the people living around the plants, until they got caught and were forced to admit it. Oh, they told the NRC all right; and NRC kept quiet concluding that many of these leaks simply couldn’t be radioactive. Just what would be leaking from a nuclear power plant – Gatoraide?

The second issue is the glaring error (or intentionality) of omission: nuclear power is one of the absolute *worst* choices for energy resources to battle global warming. To combat a more rapidly immanent than expected global warming situation would require the building of between 2,000 to 8,000 reactors worldwide (depending on whose estimates one accepts). Even if all of the nuclear industry's rosy assumptions for new reactor construction were true – and they simply are *not* – this ambitious plan would cost \$5-\$20 trillion US just for constructing the reactors. This does not include the costs for more fuel fabrication, increased security, more radioactive wastes, and the increased radioactive pollution cleanup coming from both accidental and planned radiation releases -- or terrorist induced ones. To be appreciably effective against global warming, the reactors would need to come online by 2020 – meaning completion of one new reactor every 0.7 to 3.7 days, and we would still account for displacing only between 40-50% of the carbon effects in the atmosphere, while compounding all of the other previously mentioned nuclear failings and hazards twenty-fold. Nuclear power is simply too expensive, too hazardous, and far too slow to respond to be considered a viable choice to combat global warming. Cheaper, more effective and efficient, and quicker means exist to meet legitimate energy needs, none of which contribute to nuclear pollution, hazard, or proliferation.

But what is perhaps most despicable, most revolting of the Sweet-type apologias is the illusion that all these numbers and statistics actually matter. I was warned long ago by the prescient observation of my then-thirteen year old stepson that, “Man doesn't seem to be a rational animal. He's a *rationalizing* animal!” It takes a trip to Ukraine or Belarus to begin to understand the magnitude of the intellectual dishonesty of such clap-trap arguments, and the actual level of insult they represent for the 7 million or so individuals of Belarus, Ukraine and Russia whom Kofi Annan⁵ states are most personally affected by the accident to this day. As one Conference presenter stated, “The accident is over; the catastrophe continues.”

Unless one has spoken with people like Alexander Kuzma of Ukraine's “Children of Chernobyl Relief Fund” (see: www.childrenofchernobyl.org); Adi Roche's Belarus-oriented “Chernobyl Children's Project” (www.chernobyl-international.com/home/default.asp); or some of the Ukrainian and Belarusian NGO representatives dealing with the continued effects of the accident day in and day out, one fails to appreciate the magnitude of what has happened, not just to these three terribly afflicted and affected countries, but also to the entire world. If you have not met with the thousands of children who have lost thyroid glands; the thousands who need heart surgery for the now recognized, cesium-137 induced “Chernobyl Heart” syndrome; or those who suffer partial or full loss of vision due to conditions, “fully consistent with the effects of ionizing radiation;” or, the ultimate, visited The Zone (which I elected not to do); you not only lack an appreciation for the human dimension of what was inflicted on these people, and the generations to come; you simply forfeit your right to subject the rest of the world to this monstrosity one more time using such intellectually bankrupt rationalizations of Mr. Sweet.

While at the Conference, no fewer than four recent international studies⁶ were presented demonstrating existing and anticipated health effects and fatalities that were all orders of magnitude greater than the self-described and self-serving “definitive” study released by the U.N.'s International Atomic Energy Commission (IAEA) and World Health Organization last September. The IAEA/WHO were recently embarrassed into raising their pathetic initial estimate from 4,000 fatalities to 9,000. Every other major study undertaken has calculated figures reaching from the tens-of-thousands into the millions, worldwide, over time.

This should come as no surprise, although the Chernobyl NewSpeakers will not provide such information in their writings. The IAEA's role is to promote and expand nuclear power worldwide; and they exert a binding censorship agreement over the WHO which prohibits WHO from independently releasing any health findings adverse to nuclear power without first getting IAEA clearance⁷. To this day the conference proceedings from a 1995 conference on health effects from Chernobyl have been thus bottled up from public scrutiny.

This is not the first time the IAEA has come under fire for minimizing the devastation of Chernobyl. The late Vladimir Chernousenko, Soviet physicist first on the Chernobyl accident scene, was so shocked at IAEA's penchant to minimize the accident's effects that he and his colleagues began to refer to the IAEA as, “the good united international atomic mafia” after the accident⁸. Apparently even Nobel Prize winners can lie.

To understand what Sweet's “nuclear renaissance” really means, one need go no further than the early days of the nuclear industry, which publicly stated its operation would be considered successful if it experienced a major, catastrophic release of radiation once every ten-thousand reactor years (a “reactor year” being one reactor operating

one year; to get a tally to date, sum the operating life-spans of the existing or closed reactors). Chernobyl happened at roughly 2,200 reactor-years of operation.

Given that the nuclear industry wants 2,000 to 8,000 reactors to fight global warming, humankind would have to tolerate a Chernobyl-sized (not *type*) or worse accident **every 1 to 5 years**. Lest anyone thinks this is a fiction, one need go no further than the legendary Hans Blix, who as IAEA representative, stated in 1986,

“The atomic industry can take catastrophes like Chernobyl every year.”⁹

Maybe the industry, the IAEA and Blix can. Humankind can't.

--1568 words--

Respectfully,

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7. See: Folkers, Cindy, presentation, Citizen Epidemiology Conference, Evanston, IL, May 2005;
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9. "Le Monde," Aug. 26, 1986.

The Nuclear Option

By WILLIAM SWEET

TWENTY years ago, a huge plume of radiation spread west from the Chernobyl nuclear plant. Dozens of emergency workers were killed at the scene, while vast tracts of land were evacuated and still lie fallow. Rates of thyroid cancer soared among children in Ukraine, Belarus and Russia, and sustained exposure to low levels of radiation in the area has killed or will yet kill thousands, perhaps tens of thousands, of adults. The exact number of casualties will never be known.

For decades before Chernobyl, the public had been assured that nuclear reactors could not explode like bombs and that the association of reactors with nuclear weapons was essentially false. By calling those claims into question, the accident, together with the disappointing performance of atomic power plants during the 1970's and 1980's, pretty much guaranteed that no reactor projects would be initiated for the remainder of the century.

And yet, though it went unnoticed at the time and has been inadequately appreciated since, Chernobyl also cast into relief the positive features of the reactors used in the United States and most other advanced industrial countries.

The reactor at Chernobyl belonged to a class that was especially vulnerable to runaway reactions. When operating at low power, if such reactors lost water, their reactivity could suddenly take off and very rapidly reach a threshold beyond which they could only explode. Making matters worse, surprisingly little more pressure than normal in the machine's water channels would lift its lid, snapping the vital control rods and fuel channels that entered the reactor's core.

On the night of April 25, 1986, poorly trained and supervised plant operators conducted an ill-conceived experiment, putting the machine into the very state in which reactivity was most likely to spike. Within a fraction of a second, the reactor went from being barely on to power levels many times higher than the maximum intended.

This kind of accident cannot happen in the so-called light water reactors used in the United States and most of Western Europe and Asia. In these reactors, the water functions not only as a coolant but as a "moderator": self-sustaining nuclear chain reactions cannot take place in its absence. This is a very useful passive safety feature. If coolant runs low, there is still a danger of a core meltdown, because the fuel retains heat; but the reactor will have automatically and immediately turned itself off.

Still, critics and opponents of nuclear energy have wondered whether utility companies are competent enough to manage anything so complex as a reactor. The question is a reasonable one. In the 1980's, some anti-nuclear groups joined with free-marketeers to promote electricity deregulation. They reasoned that if utilities were no longer guaranteed cost-plus returns on investments — the cushy sort of regulation that had prevailed for a century in the utility industry — they would stop investing in expensive nuclear power plants that were difficult to run.

The utility industry has responded to deregulation by reorganizing itself. And as it happens, companies have emerged that specialize in managing nuclear power plants. Although their record is somewhat mixed (Exelon, for example, stands accused of having carelessly let tritium, a radioactive isotope, leak from three Illinois reactors), on the whole the performance of nuclear power plants has improved substantially.

In 1986, the average American nuclear plant produced electricity barely 57 percent of the time. In 2004, the average plant was running productively more than 90 percent of the time.

This improvement has come just in time. The effects of global warming are disturbingly obvious, and yet the United States has fallen dangerously far behind its response. If we're to get into step with the world effort to reduce greenhouse gases, we are going to need to rely more, not less, on carbon-free nuclear energy.

William Sweet is the author of "Kicking the Carbon Habit: Global Warming and The Case for Renewable and Nuclear Energy."