

...birds of a feather...

NUCLEAR POWER AND WEAPONS: THE CONNECTIONS

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An increasing number of people in the United States today are standing up and speaking out against the dangers of nuclear weapons. At the same time a large number of these people are *in favor of* the use of nuclear power as a means of generating electricity. They believe, perhaps correctly, that the threat from the former is greater and more imminent, and further, that no connection exists between nuclear power and nuclear weapons. The facts, however, point to a different conclusion.

"ATOMS FOR PEACE" – OR NOT

For as long as there has been federal control of nuclear research and materials, there has been an interest in using commercial nuclear reactors as a source of materials to make weapons. In the early 1950's it was recognized that the weapons program would require more plutonium than could be furnished by the Atomic Energy Commission (AEC). One suggestion, made by Dr. Charles A. Thomas, then executive vice-president of Monsanto Chemical Company, was to create a dual purpose plutonium reactor, one which could produce plutonium for weapons, and electricity for commercial use.⁽³⁾

A 1951 study undertaken by the AEC concluded that commercial nuclear reactors would not be economically feasible if they were used solely to produce electricity; they would be, however, if they also produced plutonium which could be sold. Utilities themselves were only mildly intrigued with the notion of being able to produce "too cheap to meter electricity," and only so long as someone else took over the responsibility for the waste products, and indemnified them against catastrophic nuclear plant accidents. **The 1952 Annual Report for Commonwealth Edison** is instructive on the former point:

"In last year's report, we announced that our companies, as one of four non-governmental groups, had entered into an agreement with the Atomic Energy Commission to study the practicability of applying nuclear energy to the production of power. The first year's study has been completed and a report has been completed and a report has been made to the Commission. Included in the report were preliminary designs of two dual-purpose reactor plants. By "dual-purpose" we mean that the plants would be primarily for the production of power but would also produce plutonium for military purposes as a by-product. In our judgment, these plants...would be justified from an economic standpoint only if a substantial value were assigned to the plutonium produced."⁽⁷⁾

It was this fact which interested utilities in getting involved with nuclear reactors. This point was again made by the AEC's director of reactor development, Lawrence R. Hafsted, who in 1951 said it was the *multi-purpose reactor*, "rather than the imminence of cheap civilian power which lies behind the increased interest on the part of industry in certain phases of the atomic energy business."⁽³⁾

In 1953 President Dwight Eisenhower, for whatever motives one wishes to ascribe to him, announced his "Atoms for Peace" program, by which the destructive force of the atom was

to be harnessed for "peaceful" purposes. It was also at this time that the U.S. began offering nuclear technology and training to the rest of the world.

In 1954 utilities which were to operate commercial nuclear reactors were given further incentive when Congress amended the Atomic Energy Act so that **utilities would receive uranium fuel for their reactors from the government in exchange for the plutonium produced in those reactors, which to be shipped to Rocky Flats in Colorado where the federal government made plutonium triggers for nuclear weapons.**

In retrospect it is a simple matter to see that there never was an intention to separate nuclear weapons production from the use of commercial nuclear power. In a document from the Los Alamos National Laboratory dated August, 1981, one finds this statement:

"There is no technical demarcation between the military and civilian reactor and there never was one. What has persisted over the decades is just the misconception that such a linkage does not exist." ("Some Political Issues Related to Future Special Nuclear Fuels Production," LA-8969-MS, UC-16).⁽⁴⁾

While the historic separation may have been largely facade, the industry went to great lengths to preserve it. As recently as 1981 President Reagan proposed "mining" plutonium from the reprocessed spent fuel rods from commercial nuclear reactors. This seeming reversal of national policy was promptly beaten down in the Senate by an 88-9 vote on the Hart-Simpson Amendment to the NRC Authorization Bill which prohibited the use of nuclear power wastes to create nuclear weapons, and which saw both utilities and environmentalists lobbying together for its passage.

"Commercial nuclear power has a civilian role," said Fred Davis of the Government Affairs Office of the Edison Electric Institute, "and we'd hate to see the two issues tied together. It'd make what we are trying to do more difficult." (4)

THE CONNECTIONS

The connections linking nuclear power and weapons are more than political or historic. Consider:

- **FISSIONABLE MATERIALS:** It is the same nuclear fuel cycle with its mining of uranium, milling, enrichment and fuel fabrication stages which readies the uranium ore for use in reactors, whether these reactors are used to create plutonium for bombs or generate electricity. In the end, **both** reactors produce the plutonium. The only difference between them is the concentration of the various isotopes used in the fuel. A typical 1000 mega-watt (MWe) commercial power reactor operating at 90% capacity will produce ~450 pounds of plutonium isotopes annually -- enough to build ~33 Nagasaki-sized atomic bombs. The world's nuclear-power reactors are now producing about 22 tons of plutonium per year. (9)
- **TECHNOLOGY:** As Dr. Amory Lovins, director of the Rocky Mountain Institute in Colorado points out, "Every known route to bombs involves either nuclear power or materials and technology which are available, which exist in commerce, as a

direct and essential consequence of nuclear power." (2) To get plutonium for weapons, one needs a reactor, whether it is a "research" reactor (such as the one which provided India with the fissile material for its first atomic bomb) or a commercial reactor.

It takes about 13-15 pounds of plutonium-239 or uranium-235 to fashion a crude nuclear device. The technology to enrich the isotopes is available for about \$1 million dollars. It is clearly possible for terrorists to acquire both isotopes and the technology needed to enrich them. This possibility has been in the news since the breakup of the Soviet Union, and the revelation of a thriving "black market" in such materials.

But even the most technically advanced nations cannot keep track of their materials and technology. In an inventory taken between October, 1980, and March, 1981, the U.S. government could not account for about 55 pounds of plutonium and 159 pounds of uranium from its weapons facilities. The explanation given for this missing material was "accounting error" and that the materials were "stuck in the piping." (1)

In the case of the proposed "breeder" reactors, in which more plutonium is produced than is consumed, the connection is more obvious. Since the only other use for the highly toxic plutonium is to make weapons, one can easily see where the surplus might be used. Over the years the U.S. Congress has scrapped several "breeder" reactor designs, both because of their high potential for diversion and proliferation of nuclear materials into the hands of undesirable states, and because their designs became flawed, obsolete, or not in demand by nuclear utilities. Unfortunately, billions of dollars of taxpayers money had to be wasted before breeder reactors like the Clinch River Reactor in the 1980's and the Argonne Integral Fast Breeder Reactor of 1992-94 were scrapped.

The DOE has further blurred the distinctions between Atoms for Peace and for War by enlisting commercial power reactors for the production of tritium for yield enhancement in thermonuclear weapons. On May 6, 1999 then-U.S. Department of Energy Secretary Bill Richardson selected TVA's Watts Bar and Sequoyah nuclear plants for the production of tritium for use in nuclear weapons. An Interagency Agreement between DOE and TVA was approved by TVA Board and signed in 1999, authorizing use of TVA reactors for tritium production. NRC approved a license for this dual-use in 2002. (10)

PROLIFERATION, TERRORISM, "INSURANCE"

If one were to imagine for a moment that commercial nuclear power no longer existed, it would be obvious that the only use a country would then have for its uranium mining, milling, fuel fabrication and reactors would be to produce nuclear weapons. But because commercial nuclear power does exist, it is sometimes difficult to tell whether a country is using its reactors for research, or for weapons production.

It is precisely this ambiguity which makes a certainty the proliferation of nuclear weapons from so-called "peaceful research," and the proliferation of commercial nuclear reactors worldwide a Trojan Horse for nuclear weapons production.

Since World War II several countries have pieced together nuclear weapons from fuel from "peaceful research reactors." France, China, India and Pakistan have done so. Recently, North Korea has done likewise. Iran is accused of this, but with no firm evidence proving this is the case; and Iraq's WMDs remain imaginary.

To be sure there are international agreements and agencies set up to monitor the use of nuclear reactors. The International Atomic Energy Agency (IAEA) is such an entity.

However, not all countries have signed agreements allowing inspections by IAEA. Paradoxically, Iran has signed the nuclear non-proliferation treaty, giving it the legal right to pursue commercial nuclear power, while India and Israel have not. Yet, Iran is subjected to international pressures for its nuclear

programs, while the international community ignores that fact that both India and Israel possess actual nuclear weapons. The IAEA itself has admitted that even if inspections were allowed, it would not be able to tell if a country was using its commercial reactors to produce weapons.

Examination of the list of countries currently building or desiring "peaceful" nuclear reactors and the leaders of those nations does not inspire confidence for curtailing nuclear proliferation, either. As of February 2011, more than 60 countries have turned to the IAEA for guidance as they consider whether to use nuclear power. Of the 65 countries expressing an interest in the introduction of nuclear power, 21 are in Asia and the Pacific region, 21 are from Africa, 12 are in Europe (mostly Eastern Europe) and 11 are in Latin America. Neither the political stability nor the technical/financial capabilities to safely manage a nuclear power program has been demonstrated in all cases. (8)

Possession of nuclear weapons is not the only threat to peace. In some instances the mere possession or attempted construction of research reactors and commercial nuclear plants have been enough to bring on the threat of war. This "provocation" was enough to justify the Israeli bombing of Iraq's French-built Osirik reactor in 1981 during construction, and was one of the alleged reasons for the Gulf Wars in 1991 and 2003. Similarly, the Sept. 2007 Israeli "Operation Orchard" airstrike at a Syrian "research" facility was subsequently reported to have occurred to destroy an undeclared Syrian reactor facility, according to U.S. CIA and later IAEA sources. To date the US is the only country to bomb an operating nuclear reactor, when it destroyed a research reactor just 10 km outside of Baghdad on January 17, 1991. The former deputy director Mr. Zifferero from the IAEA sees it as pure luck that the core of the reactor wasn't hit. The mere suspicion that your neighbor *might* have the capability to make nuclear weapons suddenly becomes the justification for "pre-emptive strikes," and perhaps even full-fledged warfare.

Yet it is precisely this hedge that the nations newly interested in commercial nuclear reactors seek. Before leaving his post as IAEA director, 2005 Nobel Peace Prize winner Mohammed ELBaradai commented on the apparent Middle East proliferation problem, stating, "You don't really even need to have a nuclear weapon....It's enough to buy yourself an insurance policy by developing the capability, and then sit on it. Let's not kid ourselves: 90% of it is insurance, a deterrence." His conclusion was echoed by Egypt's ambassador to the U.S., Nabil Fahmy: "...commercial nuclear power does give you technology and knowledge....[but]...Without a comprehensive nuclear accord, you will have a proliferation problem in the Middle East, and it will be worse in 10 years than it is today." (11) ■

SOURCES:

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- 5.) [Bulletin of the Atomic Scientists](#), August, 1981.
- 6.) [Bulletin of the Atomic Scientists](#), October, 1981.
- 7.) [1952 Annual Report](#), Commonwealth Edison Company, Chicago.
- 8.) [International Status and Prospects of Nuclear Power 2010 Edition](#), International Atomic Energy Agency, Vienna, 2011.
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- 10.) "Tritium Production at TVA," Nov. 2003 Fact Sheet, TVA website.
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