

ARIZONA NEWSLETTER Doctors for Disaster Preparedness

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NUCLEAR WEAPONS PLANTS: A "HEALTH EMERGENCY"?

Concern for the environment is at the top of the legislative agenda for the Peace and Justice network this year, supplanting the nuclear freeze, the comprehensive nuclear test ban, and stop-the-MX or stop-the-Pershing II as the issue du jour.

To cope with the problem of "deteriorating nuclear weapons facilities and radioactive waste, [which] threatens everyone, as well as future generations," Physicians for Social Responsibility (PSR) urges Congress to oppose both the reopening of weapons plants that have been shut down and the funding for new plants.

Cost Estimates

"Clean-up estimates begin at \$150 billion, yet a Department of Energy calls for *only \$29 billion* for cleanup," according to PSR [emphasis added]. Correspondence from Senator John McCain gave \$100 billion as the General Accounting Office estimate for environmental cleanup at federally owned facilities.

The cost depends on the type of proposed clean-up. Restoring Hanford to its former pristine condition would cost about \$100 billion, according to Jerry White, director of waste management there. This considerably exceeds the agricultural value of the land. A less expensive (only \$17 billion) but still deluxe cleanup would leave soil-bound waste where it is and truck waste now in storage tanks to a deep repository. For \$2 to \$3 billion, tank waste could be "stabilized" in place (*Science* 236:1616-1620, 1987).

Assessing the Threat

A "runaway reactor" at Savannah River and radioactive tumbleweed at Hanford make good headlines. But how much of a health hazard are they? And how many lives will a \$100 billion cleanup save?

In August, 1988, the "runaway" K reactor at Savannah River, which produces tritium, had its power level drift up by 2% before the operator made an adjustment to the control rods within 20 seconds of the beginning of the drift. Forrest J. Remmick, vice chairman of the Reactor Safety Advisory Committee for the plant, called this an "incident" as opposed to an "accident." (An "accident," by his definition, involves an injury. There have been no injuries related to nuclear incidents in millions of man-hours of work at Savannah River.)

The greatest worry about radioactive waste at Hanford seems to be plutonium (although it is actually far less dangerous than cesium-137 and strontium-90). About 680 kg of plutonium are buried at Hanford (*Science, op. cit.*).

To calculate the number of lethal doses in 680 kg of plutonium, one would have to know how much of it is dispersed and how much is inhaled by human beings. If a

terrorist dispersed plutonium as a powder in a populated area, the expected number of eventual fatalities from lung cancer would be about 8.6 per kg, according to calculations by Bernard L. Cohen of the University of Pittsburgh. Over the 25,000 year half-life of plutonium, an additional 0.4 fatality/kg is expected. (Dr. Cohen's calculations are published in *Nuclear Energy*, edited by KO Ott and BI Spinard, Plenum Press, 1985, or can be downloaded from Fort Freedom by *Access to Energy* subscribers.) The maximum number of lives that could be saved by guaranteeing that 680 kg of plutonium could not be dug up and dispersed in the most dangerous possible way is thus 6,120 over 25,000 years. If \$100 billion were spent for this purpose, the cost of protecting one life from a highly implausible event would be about \$16 million.

The cost of insuring one life against an attack with weapons of mass destruction is around \$300, if the most cost-effective type of nuclear/chemical/biological shelter were built.

Soviet Environmentalism

In a speech before the United Nations, Mikhail Gorbachev stressed the "frightening" state of the world's environment.

"Time is running out....Here again I would just like to underscore most emphatically the prospects opening up in the process of disarmament...for environmental revival."

Gorbachev said that the Soviet Union had decided to end the production of highly enriched uranium for military purposes. (The US has produced none for 25 years.) He also promised to close down two facilities for producing weapons-grade plutonium, in addition to one that was closed in 1987. (President Lyndon Johnson, in his 1964 State of the Union address, announced the closing of four plutonium piles.)

The Soviets do not risk a plutonium shortage because all Chernobyl style reactors, unlike Western power reactors, have a dual-use design and can produce weapons-grade plutonium.

All US weapons reactors for making plutonium and tritium are currently shut down due to safety concerns. Meanwhile, our nuclear arsenal deteriorates; tritium must be periodically replaced because its half life is about 12 years.

Note that Gorbachev sees the connection between environmentalist concerns and disarmament—which is not emphasized by the organizations that support the Peace and Justice network. (These include Greens Action, Friends of the Earth, the Arizona Rainforest Alliance, the Tucson Southside Club of the Communist Party USA, the Tucson AIDS Project, PSR, and many others.) PSR specifically denies being in favor of unilateral disarmament.

Could accidental, unintended unilateral disarmament result in a health and safety emergency?

Blast Shelter Displayed at Utah State Fair

About 35,000 of the 300,000 people attending the Utah state fair are estimated to have toured the mobile demonstration blast shelter. The shelter, constructed by Fighting Chance for the Utah State Office of Disaster Services, was loaned to a small group of civil defenders led by Steve Park and Sharon Packer, who arranged for the display. They were so busy directing traffic that they had no time to solicit new members. Nevertheless, more than 200 people sought them out, asking what they could do to work for civil defense.

The overwhelming majority of visitors had a favorable response to the display, and the remainder were generally easy to convince of the merits of shelter. This response bears out public opinion surveys that have shown a high degree of public support for civil defense.

Shelter equipment includes a filter-ventilation system manufactured by LUWA Corporation in Switzerland. This provides 2,000 hours of protection against chemical warfare agents and has absolute filters to remove biological agents. When buried with properly designed entrances and blast valves, this steel shelter could protect its occupants from 200 pounds per square inch of blast overpressure. It is fire-safe and has a radiation protection factor of about 10,000. The installed cost can be as low as \$300 per person.

To date, about 200 Americans have constructed shelters of this design.

Two demonstration shelters will be exhibited at the annual meeting of DDP and The American Civil Defense Association in Arlington, VA, September 29-October 2.

Further information is available from the editor.

Toxicology Reports from Angola

Hundreds of Angolans, many of them civilians, have reportedly died or become paralyzed—without evidence of injury—after bombing attacks by Soviet-backed troops.

Belgian toxicologist Aubin Heyndrickx, previously known for his findings of mycotoxins in samples from Southeast Asia, recently visited Washington, DC, to bring his findings to the attention of American policymakers.

The Laboratoria voor Toxicologie Criminalistiek at the State University of Ghent reported the following results from several missions to Angola:

- High levels of cyanide detected in bomb fragments of Soviet manufacture, environmental samples, and blood;

- Several patients with low blood levels of acetylcholinesterase activity, compatible with the presence of nerve gases such as tabun, sarin, or soman;

- Soviet-made nerve gas detection kits captured by UNITA forces from Cuban prisoners (identical to kits recovered from Russian prisoners in Afghanistan);

- Worsening of the status of a few patients, who were given NATO antidotes to nerve gas.

In the report of his fourth mission to Angola, May 19-24, 1989, Heyndrickx concluded that the pathologic and toxicologic effects seen in patients were unexplained. He stated that “the gas(es) used on the Angolan people are completely new gases with severe irreversible toxic effects on man. At the moment, no treatment with any pharmaceutical we studied can help; further toxicological and medical investigation and research are

urgently needed.”

If Cuban use of chemical weapons in Angola is confirmed, the US could not, by congressional mandate, provide funds for the United Nations peacekeeping and transition forces in Namibia, according to policy analyst Richard Sincere in an article about Heyndrickx's presentation to the International Freedom Foundation (*New York City Tribune* 7/25/89).

Sincere urged the Bush Administration to release the results of scientific studies by NATO allies, to expedite visa applications so that Angolan victims can receive medical treatment in the United States, and to send Department of Defense scientists to Angola for a full-scale investigation.

Chemical Warfare: Gorbachev Speaks

At an April 7 meeting at Guildhall, the London City Council, Gorbachev stated that: “Elimination of chemical weapons is one of the most important problems of demilitarization of international politics. We value the position of Great Britain, which eliminated these weapons unilaterally....

“We have completed the construction of a facility to destroy chemical weapons....The USSR will persist in its striving to attain as speedily as possible the conclusion of a comprehensive international convention completely banning and eliminating chemical weapons. We have made several important decisions to convert military production...to the production of goods for the agrarian sector and...food industry.”

In a July speech to the Council of Europe, Gorbachev stated that the USSR was also “in favor of the complete liquidation of chemical weapons in the nearest future and the destruction for all time of the production base for the creation of such weapons.”

Poison Gas in Georgia

The Soviets themselves have admitted to using poison gas against their own citizens during a peaceful hunger strike in Georgia. About 4,000 people sought help in Tbilisi hospitals, and 543 were admitted as inpatients because of the effects of the gas. There were two known fatalities. According to Barry H. Rumack, MD, a US toxicologist, the gas was chloropicrin, which causes severe chest irritation, dilated pupils, and burns in the nose and throat. Chloropicrin was first used in 1916 by Germany and is banned by the Geneva Protocol (*JAMA* 262:603-4).

“Why aren't the Soviet authorities abiding by the Geneva Convention in an undeclared war against their own citizens?” asked Alexander Podrabinek, editor of the weekly *Express Khronika*, who has recently been arrested. Podrabinek stated that a type of tear gas called “Cheremukha” (bird-cherry) is being widely used against prisoners in jails and labor camps, and that he personally recalls prison officers scattering a chlorine powder on the floor of a cell and pouring water over it. “But that was done against us, prisoner outcasts” (*Samizdat Bulletin*, summer, 1989).

The Geneva Protocol does not apply to a nation's own citizens, as pointed out by Jennifer Leaning, MD, president of Physicians for Social Responsibility. And members of Physicians for Human Rights, who visited Soviet Georgia about a month after the episode, suggested that soldiers might not have known what was in the canisters they decided to use.