Uranium Coverup 05/21 - More hazards

The main hazards of uranium are fire, toxicity, and radioactivity. Uranium in larger chunks ignites at 500 deg C, while in finer form it self-ignites and burns spontaneously in the air. Heavy metal uranium forms oxides that are as toxic as arsenic compounds, particularly affecting the renal system.

Inhaling and swallowing a high dose of uranium oxides entering nose and throat could pose a serious risk, as could happen in an acute exposure to explosion dust and debris from a uranium weapon. Prolonged exposure in a contaminated environment would lead to similar effects.

As in the toxic hazard, radioactive risks arise by inhaling uranium dust in the air and ingesting it from dust in the mouth, water, or food. Inhaled particles enter deep into the lungs. The body removes insoluble uranium oxides very slowly, halving their amount in 10 to 20 years. Some particles may move from the lung to the lymph nodes and bone. U-238 emits particles - high energy but ranging only a few millimeters in the air, and rays from its products of decay. Hence the radiological insult from a microscopic speck of U-238 oxide inside the body is focused on the surrounding tissue within a radius of about 30 microns. “Impurities” added to DU in the recycling process add other “hot “ micro-particles to the hazards of pure DU.

Uranium radiation hazards are covered-up and misrepresented. The total radiological dose inside a person over years severely exceeds safe limits. Limits set by the International Commission on Radiological Protection (ICRP) derive from empirically invalid assumptions due to secrecy and distortions around the effects of Hiroshima and Nagasaki bombs, then around Cold War developments of nuclear power and weapons. The ICRP risk model was based on studies of bomb survivors, which overlooked the effects from an internal radiation source and ignored cancers that take decades to appear. Physicists instead of biologists developed the ICRP model before DNA was known, yet it purports to represent cell damage processes. ICRP model spreads a dose over a large mass of tissue instead of considering biophysical and biochemical damage mechanisms at the cellular level. A critique was just published by the European Committee on Radiation Risk (ECRR). It shows ICRP models of risk from internal particles underestimate empirical mortality and morbidity by a factor of 100 to 1000.

Long before the ECRR critique, standard textbooks on radioactivity have been stating that if ?-particles enter the body with inhalation, food or through open wounds, they become exceptionally dangerous, since they emit much energy to each cell. The standard texts are also clear that long-term effects of accumulated small exposures transfer to future generations. Every dose is harmful and can cause cancer or genetic changes after years, therefore one must always avoid unnecessary exposure and maintain doses in smallest quantities possible.

The hazard of particles is large despite their short range in a tissue, for example, 30 microns in the lungs. Although particles penetrate tissue to the depth of several centimeters, the resulting biological damage is significantly smaller compared to that of particles. The tissue weakens X-rays only to a small degree. The biological effect of one absorbed quantum of X-ray radiation in the tissue is the same as from one quantum of ?-radiation. External exposure by contact with DU metal can be hazardous; over less than a few hours one can get annual allowable dose. DU contaminated by nuclear waste blended into it is more risky. Many military and civilians got sick from wearing “DU jewellery” or keeping DU fragments in the

pockets.

One mg of U-238 emits per year the equivalent of over one billion high energy, ionizing particles and rays that can produce extensive biological damage. The mass of inhalable particles is typically a few nanograms (one billionth of a gram), so a typical one may emit about a thousand particles per year, or one every few hours. The energy of each ?-particle exceeds the damage threshold of vital cell-building molecules. Novel chemical reactions take place, which alter or destroy the shape, organisation and function of these molecules. A particle of uranium oxide lodged in the tissue damages a cell beyond repair [www.llrc.org/health/healthpage.htm]. The radiological insult triggers biological damage mechanisms, which extend the initial damage. ECRR attributes a 1000 more damaging power to a U-238 particle lodged in the tissue, compared to other forms of ingested and inhaled U-238.