Uranium Coverup 04/21 - Fate of Uranium

Upon impact, the high kinetic energy of an armour-piercing DU projectile ignites it and helps it penetrate the armour, self-sharpening fashion. Part of DU metal vaporizes into a very fine dust (aerosol) of uranium oxides. About two-thirds are dark brown and black insoluble particles. Those oxygen-rich are soluble in water, and yellow and orange in colour.

The dust covers the target area, is readily re-suspended, and can travel with wind for at least tens of km. Fire consuming DU ammunition and DU armour also turns the metal into oxide particles. Depleted uranium rounds that miss the target may corrode in soil or water, producing fine material that disperses with air movements and washes away.

Uranium oxide residue includes unnatural, sharp-edged ceramic particles that pose a special hazard inside the body. About 50 - 70% of the particles in the dust are respirable, i.e. less than 10 ?m in size. Soldiers who survive an attack by DU ammunition may have DU metal and dust in the wounds. They will likely have inhaled or ingested far more DU dust than recommended limits on intake. Civilians may also inhale or ingest DU dust or collect fragments of DU metal.

Several US Bradley fighting vehicles were buried in Saudi Arabia due to “substantial non-removable depleted uranium contamination.” The remaining vehicles and tanks were shipped to a decontamination facility in the USA, where workers in protective suits cleaned up some vehicles, but the more heavily contaminated equipment was buried in a radioactive waste dump The Kuwaiti government hired foreign contractors to gather destroyed Iraqi equipment in its territory, including vehicles contaminated with DU [US Army Medical Research Institute of Infectious Diseases, 1995]. A 1995 article in the US Army magazine Armor gave advice on minimizing exposure to DU: “If you find radioactive DU contamination on a vehicle, move the vehicle to a site away from water sources, food storage or eating areas, and occupied bivouac sites [...] always keep personnel away from contaminated equipment or terrain unless required to complete the mission.”

DU particles still fly around DU battlefields and beyond. With a half-life of 4.5 billion years, U-238 particles contaminate practically forever. Elevated radioactivity levels (from U-235 and decay products of U-238 in DU, from transuranics, and U-236 contained in "dirty" DU, or from other uranium non-nuclear weapons used in the Gulf War) were measured in Bulgaria, when the wind blew from the Persian Gulf. A decade after the Gulf War, Dr. Chris Busby measured ?-activity on the battlefields in southern Iraq at 20 times higher level than in Baghdad, and in the populated Basrah region adjacent to the battlefields – at 10 times higher level.

In November 2002, UN Environmental Program (UNEP) investigators of the fate of DU ammunition used in 1994-1995 in Bosnia recommended evacuation and cleanups of contaminated buildings and grounds in Hadžici (Sarajevo) and Han Pijesak (Republika Srpska). Hadžici refugees in Bratunac and elsewhere have died of radiation exposure, but a report from a local health professional Dr. Slavica Jovanovic has not been published yet. In Kosovo, Montenegro and Southern Serbia, DU-sites were previously marked, fenced off, and contaminated soil was removed to storage at the Yugoslav nuclear institute in Vinca.

Soldiers bring DU particles home on clothing and on “souvenirs” collected from the battlefields. Many of non-combat military, civilians at the ports receiving Gulf War soldiers and equipment, as well as families of the combatants contracted Gulf War syndrome, without ever being near DU battlefields, and without receiving vaccinations that were administered to the combatants. In October 2002, vice chairman of the US veterans coalition Denise Nichols stated in her critique of the government’s analysis of Gulf War casualties: “Civilians – meaning service personnel wives and children – have reported in ill but no data has been provided on that! These service personnel sent home items from the Gulf and then returned, themselves and more equipment after the war. Members of the same units, who did not go to the war but dealt with returning equipment from the Gulf have reported ill. Civilians at the port sites that work with the equipment returning from the Gulf have reported in ill. Their families have also experienced health problems.”

The combat fate of uranium in the other munitions is similar to that in DU bullets and armour. The energy of impact of uranium penetrators might ignite the metal, or else uranium would burn in the explosion. If uranium remained as fragments, it would eventually corrode. Uranium lining of shaped charges likely turns partially into uranium oxide dust with a high proportion of ceramic particles. Production, testing, and disposal of uranium weapons create similar hazards as combat use. To date, most of the states in the US have hosted these activities. Data is scarce on similar problems in over 30 other countries that produce and use uranium non-nuclear weapons. Many people exposed in uranium mining, nuclear industry processes, DU weapons manufacturing, testing ranges and disposal sites show significant increases in slow onset cancers, compared to less exposed communities and occupations See reports of the Military Toxics Project [www.miltoxproj.org].

The cleanup bill for DU fine particles, shrapnel and unexploded ammunition at just one of many such places around the world, the Jefferson Proving Ground in Indiana, would be $7.8 billion, so the area was not cleaned up but closed. Disposal of expired uranium weapons can release an order of magnitude more contamination than uranium battles. The Sierra Army Depot in Northern California has burned tens of times more DU munitions than all DU wars have used [The Chugoku Shimbun, May 19, 2000].

In a fire at a DU munitions plant near New York in the 1970s, DU dust was carried downwind 41 km from the site of the fire. More recent fires at the UK Royal Ordnance factory in Featherstone in 1996 and 1999 sent plumes tens of km away from the source. In 1999, a plume of smoke reached 50 km out, exposing thousands of local residents to uranium dust for at least several weeks. The fire released 200-500 kg of DU, the mass of uranium in a medium-sized penetrating bomb. The fallout fell down on unknown locations.

A 1991 fire at the US Army base in Doha, Kuwait, destroyed 300 high caliber DU tank rounds, an unknown number of small caliber DU rounds, and four tanks with DU armour and 111 rounds of 120 mm ammunition. Thousands of soldiers were exposed to airborne uranium oxide. The amount of uranium released would be a few tons – as much as in the largest hard-target guided weapon. This information was leaked to the media from the US Army's CHPPM report that has not been released to the Presidential Advisory Committee on Gulf War Illnesses. US troops are still stationed at Doha.

Smaller-scale incidents are also hazardous. One involving pulverization of metallic DU occurred at the Robins Air Force Base, Georgia. The following note was sent to the Nuclear Regulatory Commission on July 27, 1999: "A technician was found using a hammer and chisel to remove installed depleted uranium

counterweights from the aileron. This process produced dust and debris that was scattered by a nearby fan. The technician using a hammer and chisel on the depleted uranium was in violation of several rules [...] The area has been secured and decontamination procedures initiated."