The Myth of the Safety of "Depleted" Uranium (DU)

VFP Working Group - DU / Cluster Bombs / Landmine

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For over seven decades, the U.S.* and many proponents of uranium weapons have asserted these weapons are a toxic heavy metal and radioactive, but "safe unless *inside* the body."

Their assertions that depleted uranium "(DU) "is safe", that its radioactivity is "harmless outside the body", and that "DU is less radioactive than naturally-occurring uranium" has helped ensure an ongoing policy of production and use.

Evidence concludes these assertions *are a myth.*

Made into a metal, this material becomes a superior set of weapons coveted for military use as "bunker-busting" bombs, penetrators, armor, and as ballast in some commercial airplanes and ships, and other uses of which the public may be unaware.

Chemistry doesn't lie. It is a scientific fact that **DU becomes *more radioactive as it ages*.**

Here's an explanation ~

Because uranium is an unstable element it emits different forms of radiation in an attempt to stabilize. There are differing 'types' of uranium, called isotopes. 99% of Uranium, including DU, is composed of one type, U238.

U238 atoms emit ('radiate') an alpha particle & immediately becomes a 'decay product' - it is no longer uranium. It becomes thorium (Th234) for 24.1 days,

after which thorium emits a beta particle and becomes protactinium (Pa234) which lasts only a minute before it emits a gamma wave (like an X-ray). As DU ages it produces alpha, beta and gamma forms of radiation (see glossary below) - all are ionizing radiation (the bad kind for all living systems).

"One gram of U238 with ***no*** decay products present produces 12,430 disintegrations per second. After 25 weeks, there is enough Th and Pa in the mix that *each* of these decay products is producing the same amount of radioactivity as the uranium." (1)

What does all of this mean? The original DU sample is now a mix of slowly-decaying uranium atoms and rapidly-decaying Th and Pa atoms, which in combination emit a mix of particles and gamma rays (x-rays) that is much more radioactive than the uranium alone.

Calculating DU's radioactivity is inaccurate unless & until the decay products are included.

"Six months at most after manufacture of a DU penetrator, or DU tank amor, or DU particles in a person's body, substantial additional radiation in the form of beta particles and gamma rays always will be present. IN FACT MOST OF THE PENETRATING GAMMA RADIATION AND ALL OF THE PENETRATING BETA RADIATION FROM DU COMES, **NOT FROM URANIUM**, BUT FROM THE DECAY PROGENY OF U238" (2).

This essential calculation for determining the true radioactivity of DU, and therefore its safety, is absent from official government conclusions.

* U.S. Sources of these assertions include, but not limited to: Department of Energy (DOE), Nuclear Regulatory Commission (NRC), International Atomic Energy Agency (IAEA), Occupational Safety and Health Administration

(OSHA), Department of Defense (DOD); Pentagon, the Environmental Protections Agency (EPA).

Similar statements are perpetuated from many sources outside the U.S.

1. Contamination of Persian Gulf War Veterans and Others by Depleted Uranium, by Leonard A. Dietz, July 19,1996. www.wise-uranium.org/dgvd.html#R15

2. Handbook of Chemistry & Physics, p. B-535, op. cit.

3. **Source**: VFP DU Working Group HERE , or here: https://www.veteransforpeace.org/our- work/working-groups/du-cluster-bombs- and-landmine-working-group

GLOSSARY

RADIOACTIVITY: The process in which a radioactive nucleus emits (gives off) radiation and changes to a different isotope or element. A number of different particles can be emitted by decay. The most typical are alpha, beta particles, and gamma rays.

IONIZING RADIATION: Radiation that can strip electrons from atoms, i.e., alpha, beta, and gamma radiation.
Ionizing radiation has sufficient energy to change the structure of molecules, including DNA, within the cells of the body. Some of these molecular changes are so complex that it may be difficult for the body's repair mechanisms to mend them correctly. However, the evidence is that only a small fraction of such changes would be expected to result in cancer or other health effects.

ISOTOPES: A version of the same element with the nucleus having the same number of protons but a different number of neutrons.

ALPHA, BETA, GAMMA RADIATION
ALPHA: A positively charged particle made up of two neutrons and two protons emitted by certain radioactive nuclei. Alpha particles can be stopped by thin layers of light materials, such

as a sheet of paper, and pose no direct or external radiation threat; however, they can pose a serious threat if ingested.

BETA: An electron or positron emitted by certain radioactive nuclei. Beta particles can be stopped by aluminum. They pose a serious direct or external radiation threat and can be lethal, depending on the amount received.

GAMMA: High-energy electromagnetic radiation emitted by certain radioactive nuclei. These rays have high energy and a short wave length. Stopping gamma rays requires thick layers of dense materials such as lead. Gamma rays are potentially lethal to humans depending on the dose.

DECAY PRODUCTS: a decay product (aka a daughter product) is **the remaining element left over from radioactive decay of the parent element**.The atoms formed and the energy and particles emitted as radioactive material decays to reach a stable form.

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