

Radiological Conditions in Al-Basra Province of Iraq with Residues of Depleted Uranium in Food Animals Review Article

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Abstract

Naturally occurring uranium ore is abundant in nature and contains several isotopes of uranium. All uranium isotopes are radioactive. However, only Uranium-235 (U-235) is used to produce nuclear power and nuclear weapons. Uranium-235, important for nuclear weapons, is concentrated through uranium enrichment. In the 1970s, due to its high density, the USA started using DU to create bullets and mortar shells. The uranium oxide produced from the dust is mostly deposited inside the vehicle. depleted uranium mainly emits alpha particles. Alpha lack sufficient energy to penetrate through the skin. Exposure to DU outside the human body is not believed to be a serious hazard, but ingestion or inhalation of DU is a significant health threat. Exposure to alpha particles can have a detrimental impact on living cells, potentially leading to kidney damage. Dust that escapes from uranium metal does not usually travel far due to its density. Urine samples from soldiers and civilians in DU ammunition areas show low DU exposure. Contaminated soil taken by cattle and sheep can contaminate the food chain. However, the transfer factor in animals is relatively low, comparable to the one for transfer to plants.

Keywords: Depleted Uranium, Basrah, Al-Zubair, Food Animals.

Definitions and Unit

Uranium (chemical code U) is a silver-colored heavy metal. Comparable to tungsten it is very dense, about 19 grams per cubic centimeter Thus a 10 cm cube would weigh 20 kilograms (1). Found in all rocks, soil, water and air. The average concentration in soils is about 2 parts per million, equal to 2 g per ton (2). The unit of radioactivity is the Becquerel (Bq): If an activity is measured at 1 Bq, it means that one decay occurs every second (3). The primary cause of damage from ionizing radiation is the absorption of energy by body tissues, known as radiation dose. The unit used to measure radiation doses is the Sievert. (Sv), or the millisievert (1 Sv equal to 1000 mSv), to relate the

activity of a radioactive material (in Bq) to the radiation dose it produces (in Sv), It is important to determine if the body is exposed internally or externally, the radiation type (alpha, beta, or gamma) and the energy of the radiation (4).

Depleted uranium (DU)

An enriched form of uranium containing a high concentration of uranium-235, is used for nuclear energy and weapons production. The uranium mixture that remains after removing enriched uranium is called depleted uranium, as it has reduced concentrations of uranium-235 and uranium-234 isotopes (DU) (2). The half-lives (Radioactive decay is the process of