

Comm - 023

1/31/10

Utah Department of Environmental Quality  
Division of Radiation Control  
Room 212, Airport East Business Building (Bldg #2)  
168 North 1950 West.  
Salt Lake City, Utah 84114-4850



Dear Utah State Radiation Control Board Members,

I am a pediatrician and I have worked as such for many years, having obtained my Doctor of Medicine (MD) degree from Case Western Reserve University School of Medicine in 1970.

I am aware of the unique and synergistic impacts that depleted uranium's radioactivity and toxicity can have on the human body. Children and infants are especially susceptible to the ill effects caused by depleted uranium exposure.

According to latest report from the National Academies of Science titled "Bier VII: Health Risks from Exposure to Low Levels of Ionizing Radiation," there is a linear dose-response relationship between exposure to ionizing radiation and the development of solid cancers in humans. The report also makes the following points:

1. It is unlikely that there is a threshold below which cancers are not induced.

Thus, the smallest dose of radiation has the potential to cause a small increase in health risks to humans.

2. 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.

3. An important finding from the studies was that the occurrence of solid

cancers increases in proportion to radiation dose. More than 60% of exposed survivors received a dose of radiation of less than 100 mSv (millisievert).

4. Evidence suggests excess cancers can be detected as low as 10 mSv *in utero*.

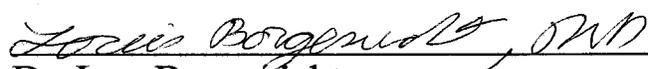
Depleted uranium is a known nephrotoxin (toxic to the kidney), and there is a growing body of evidence demonstrating that depleted uranium may also be genotoxic, mutagenic, tumorigenic and neurotoxic. Children as well as the embryo/fetus are likely at a higher risk from the mutagenic and carcinogenic nature of depleted uranium.

As a neurotoxin, uranium isotopes are similar to lead. The primary form that uranium isotopes take in the body is the uranyl cation ( $U_{2+}$ ) and may act in an analogous fashion to the lead cation ( $Pb_{2+}$ ). This lead cation has a well known and tragic history as a neurotoxin, especially in children.

I am aware that EnergySolutions has accepted large amounts of depleted uranium for disposal in Utah in the absence of regulations which would require studies as to health effects and safeguards against inadvertent exposure.

In conclusion, I strongly urge the Utah State Radiation Control Board to adopt measures which would preclude acceptance of any additional depleted uranium into our state until these issues are fully investigated and substantial protections exist to protect human health and the environment for the duration of depleted uranium's hazard life.

Sincerely,

  
\_\_\_\_\_  
Dr. Lou Borgenicht