

Several tons of uranium and a town called Colonie

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Recent research by the Department of Geology at University of Leicester, and at the British Geological Survey aims to improve understanding of how depleted uranium particulate behaves in the environment. PhD research student Nicholas Lloyd has identified uranium oxide particulate that has survived more than 25 years in the environment, and depleted uranium contamination nearly 6 km from point of release.

The use of depleted uranium (DU) munitions by US and British forces has been highly controversial; on impact with armoured targets they shed uranium particulate that can be inhaled into the lungs. DU is both weakly radioactive and chemically toxic. Concerns raised by campaign groups have been the subject of numerous newspaper headlines, and it is frequently cited as a possible cause of Gulf War syndrome.

However, under the scrutiny of peer-review, scientific studies have so far failed to demonstrate a significant connection between inhalation exposure and human ill-health. One of the problems is that no studied non-occupational populations have been shown to have significant inhalation exposure to DU.

During the 1960s and '70s an estimated 5 tonnes of uranium was emitted into the environment, in a residential area of Colonie, NY, USA. Local residents are concerned that they were exposed to airborne particulate, and have campaigned for a health study. The current research could provide valuable baseline data for such a study.

The researchers led by Professor Randall Parrish collected hundreds of soil and dust samples last July, with the help of local residents and Dr John Arnason of SUNY at Albany. Soils and dusts have been examined using scanning electron microscopy, and reveal micrometer diameter uranium-rich particulate (invisible to the naked eye). These particles may be resuspended and inhaled. The samples have also been analysed by mass spectrometry, revealing contamination several hundreds of times greater than background near source, and trace contamination 35 cm below surface and as far afield as 5.8 km.

Nicholas said that the study by University of Leicester and the British Geological Survey aims to improve understanding of how depleted uranium particulate behaves in the environment. The study shows that uranium oxide particulate is both mobile and durable in the environment.

The research is being presented to the public at the University of Leicester on June 29. The Festival of Postgraduate Research introduces employers and the public to the next generation of innovators and cutting-edge researchers, and gives postgraduate researchers the opportunity to explain the real world implications of their research to a wide ranging audience.

Source: University of Leicester

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