

## **A Survey of USTUR Actinide Contaminated Wound Cases**

J. J. Russell

*United States Transuranium and Uranium Registries, Washington State University, 2710  
University Dr., Richland, WA 99352-1671*

Since 1978, the United States Transuranium and Uranium Registries (USTUR) have been studying the biokinetics, distribution, and possible deleterious effects associated with human intakes of the actinide elements, including uranium. By far the largest number of USTUR registrants have incurred their actinide body burdens via inhalation, followed by mixed intakes from wounds and inhalation and lastly via wounds alone. The routes of accidental intake were taken from the registrants health physics records supplied by their former employers. In those cases where no recorded incident report existed and the employee had a positive bioassay and or a measurable body burden, it was assumed that the intake took place at very low levels over many years and was thus classified as chronic inhalation.

To date, 32 cases have been identified as wound and/or inhalation incidents, and 12 identified as wounds only. Several of these wound cases were treated via chelation therapy and or surgical excision of the wound site. In addition to the actinide cases, the USTUR has also collected autopsy tissue samples and radiochemical data from two whole body donors who had received intravenous injections of Thorotrast, a colloidal suspension of thorium dioxide. The similarities between the sub dermal and intramuscular depositions of Thorotrast with the resultant tissue / cellular responses to those of DU-induced wounds in former military service personnel are somewhat comparable.

In this study, we examine not only the translocation of alpha activity from the wound site but also the histological, physiological and molecular events that are set in motion following the accidental intake or induced wounds from the alpha emitters. Some or all these same induced changes or events are probable precursors leading to the induction of fibrosis seen in various tissues following long term alpha particle irradiation i.e. thorotrastomas, and pniumosclerosis and bone marrow fibrosis seen in some Pu workers.

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