

Mayak Worker Dosimetry System 2008 (MWDS-2008): Assessment of Internal Dose from Measurement Results of Plutonium Activity in Urine

Victor V. Khokhryakov¹; Valentin F. Khokhryakov¹; Klara G. Suslova¹; Vadim V. Vostrotin¹; Vladimir E. Vvedensky¹; Alexandra B. Sokolova¹; Melinda P. Krahenbuhl²; Alan Birchall³; Scott C. Miller²; Anatoly E. Schadilov¹; Alexander V. Ephimov¹

¹*Southern Urals Biophysics Institute, Russia*; ²*University of Utah, USA*; ³*HPA Centre for Radiation, Chemical and Environmental Hazards, UK*

Abstract: A new modification of the prior human lung compartment plutonium model, Doses-2005, has been described. The modified model was named "Mayak Worker Dosimetry System-2008" (MWDS-2008). In contrast to earlier models developed for workers at the Mayak Production Association (Mayak PA), the new model more correctly describes plutonium biokinetics and metabolism in pulmonary lymph nodes. The MWDS-2008 also provides two sets of doses estimates: one based on bioassay data and the other based on autopsy data, where available. The algorithm of internal dose calculation from autopsy data will be described in a separate paper. Results of comparative analyses of Doses-2005 and MWDS-2008 are provided. Perspectives on the further development of plutonium dosimetry are discussed.

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